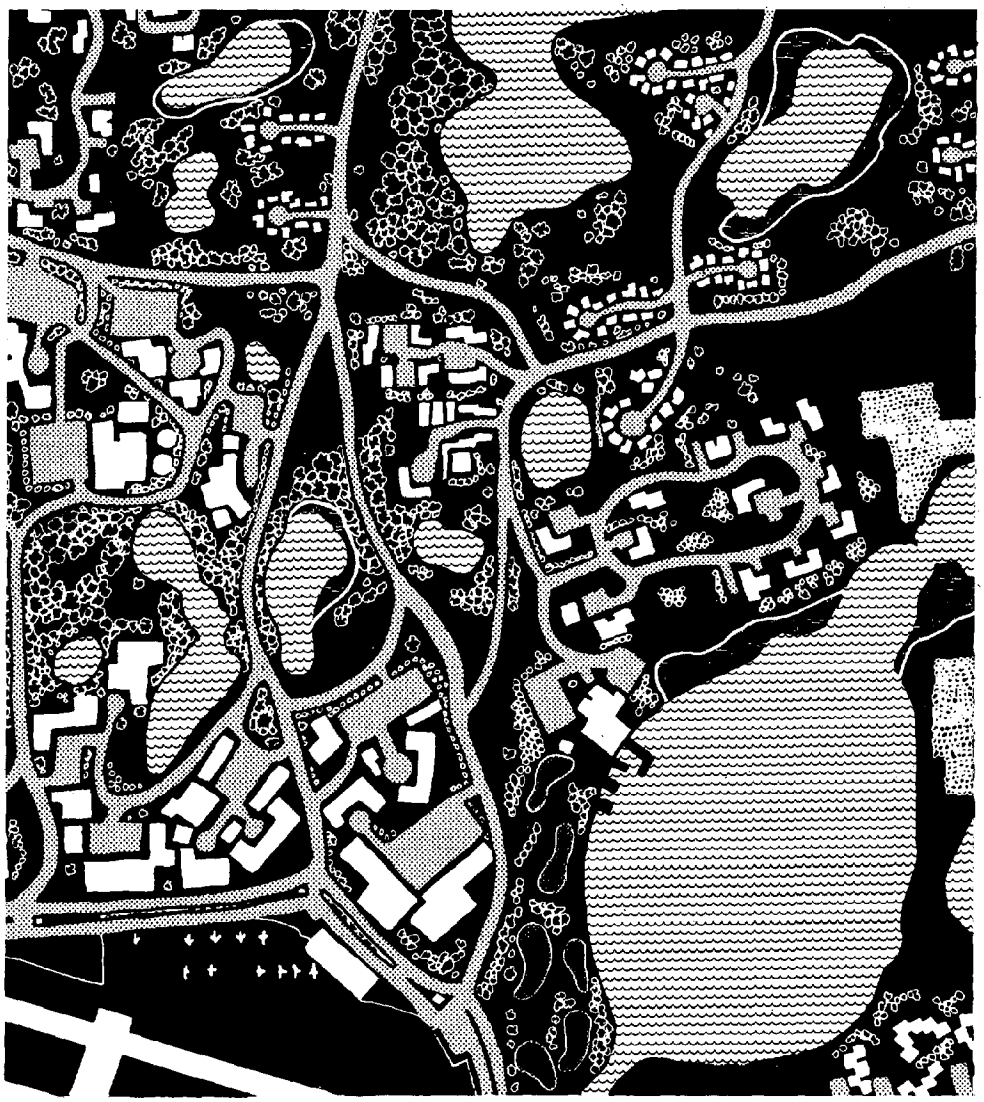
THE FLORIDA STATE COMPREHENSIVE PLAN

LAND DEVELOPMENT ELEMENT



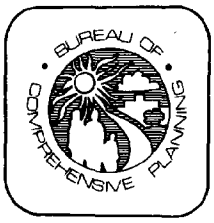
THE FLORIDA DEPARTMENT OF ADMINISTRATION - DIVISION OF STATE PLANNING

DSP-BCP-12-77

LAND DEVELOPMENT ELEMENT

OF THE

STATE COMPREHENSIVE PLAN



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SCOPE AND CONTENT

I. INTRODUCTION

Development in the state has occurred and continues to occur without benefit of an overall management strategy. Rapid and intensive development has begun to place heavy demands upon the lands and related resources of the state. While some areas of the state are overly developed relative to resource support capability, other areas would benefit socially and economically by development or redevelopment. Some lands providing goods and services essential to the public health and well-being, such as food, water and cultural resources, are being converted to competing, and often, less essential, uses.

The state has grown at an extremely high rate over the past several years. From 1960 to 1976, the population increased from 4,951,560 to 8,551,814 (See Figure 1). During the 1970's, the population increased at a rate of approximately 24,000 persons per month. The rates of future population growth can never be precisely predicted due to constantly changing conditions. However, current projections are that Florida's population will reach 9,878,000 by 1980; 12,410,000 by 1990 and 14,545,000 by the year 2000.

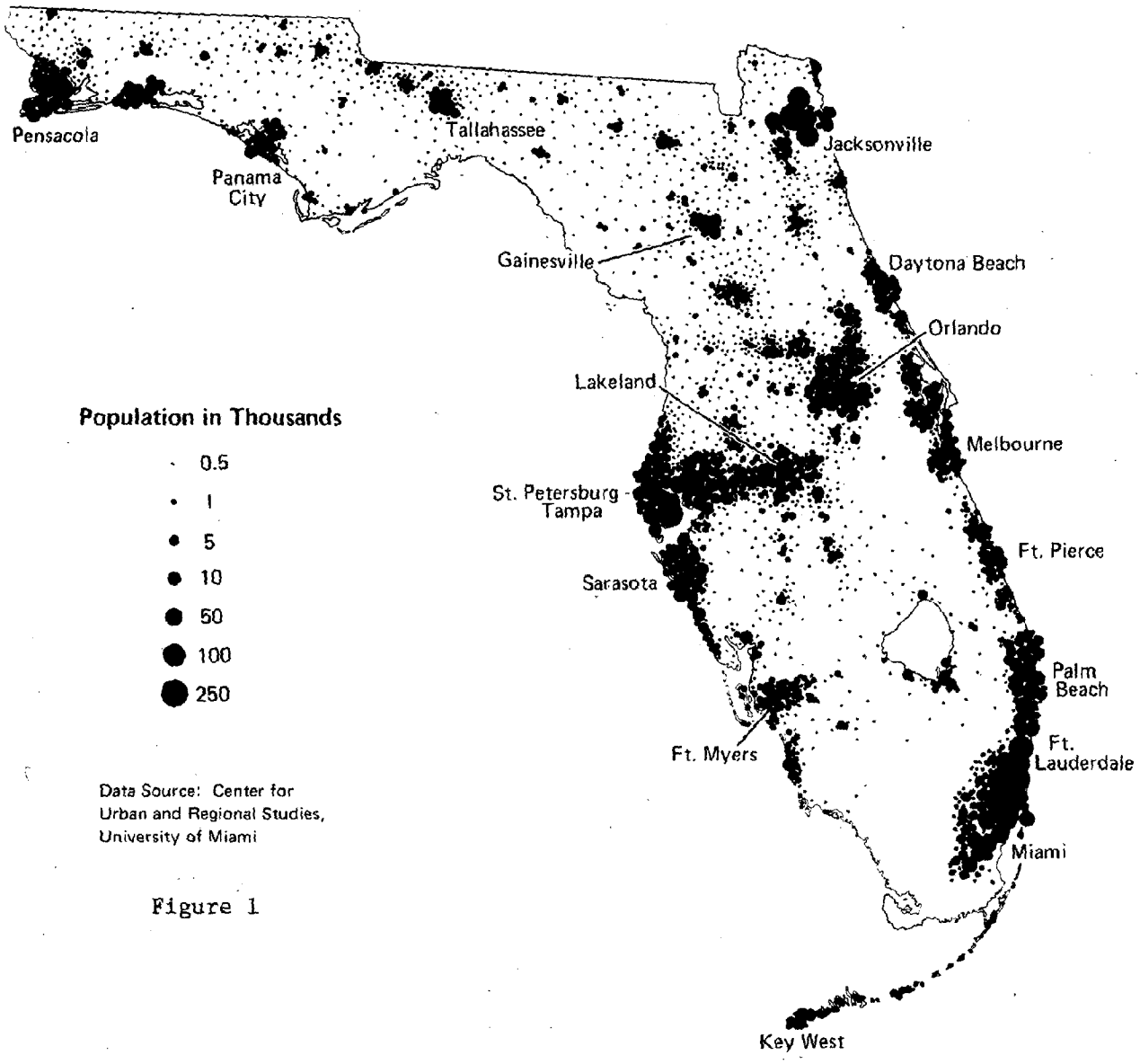
Seventy-five percent of the state's population is now located on only 27.6 percent of the land area of the state--the coastal zone (See Figure 2). As well as being the most attractive area to new residents, the coastal zone is the most sensitive to development. Consequently, development in the coastal zone must be planned with extreme care and in accordance with the principles of resource protection and conservation.

The total land area of the state is 37,478,840 acres, which includes 2,831,800 acres of inland open waters. Of the remaining 34,647,040 acres approximately 15% is government owned. Approximately 3.5 million acres is in Federal ownership; approximately 1.5 million acres is in State ownership (excluding sovereign land); and approximately 125 thousand acres in local government ownership. There are approximately 2,000,000 acres in urban uses and the remaining acres are in rural uses.

The most conservative estimates indicate that over 16,000,000 acres of the land area are uplands. The upland areas (non-wetlands) are predominantly well-drained and contain sufficient natural resources to support managed growth and development. Most of the uplands are located in the interior of the state and contain only about twenty-five percent of the state's population, the majority located in six urban areas.

In addition to relatively undeveloped upland areas in the state suitable for new development, there are deteriorated cores within urban areas which are suitable for redevelopment. This is due, for the most part, to the significant private and public investment in land, structures and public facilities located in these urban areas.

POPULATION DISTRIBUTION



Data Source: Center for Urban and Regional Studies, University of Miami

Figure 1

Thus, vast areas of the state remain virtually undeveloped and much of the urban core underutilized, suggesting that many of Florida's development problems are not necessarily related to the size of its population but rather to the distribution of the population.

Recognizing that growth and development will continue in years to come, in order to maintain the present quality of life and social and economic vitality, it is imperative that the land and its related resources be protected, conserved and properly managed. Land management must consider the capabilities of the land and related resources to support development. At the same time, it must recognize the need for economic development, housing and urban development, recreation and cultural development, transportation, agriculture and environmental protection.

The opportunities and constraints presented to development by the capabilities of these resources must be taken into account if wise expenditures of fiscal and natural resources are to be made by government and the private sector. The State Land Development Plan provides a coordinated approach to growth and development by presenting an integrated set of land development goals, objectives, policies, and strategies for achievement of proper land management through implementation mechanisms.

II. AUTHORITY

In recognition of the problems associated with development in the state and the need for long-range planning, the Legislature enacted the Florida State Comprehensive Planning Act of 1972 (Chapter 23, Florida Statutes) and the Florida Environmental Land and Water Management Act of 1972 (Chapter 380, Florida Statutes). The Division of State Planning, pursuant to Chapter 23, is preparing a State Comprehensive Plan. The State Comprehensive Plan will provide long-range guidance for orderly social, economic and physical growth of the state by setting forth goals, objectives and policies. The State Land Development Plan is defined in Section 380.031(15), Florida Statutes, as "A comprehensive statewide plan or any portion thereof setting forth state land development policies."

It is the paramount responsibility of the state to protect and promote the health, safety and general welfare of its citizens. Therefore, the state planning process must assess the values, needs and desires of the citizens of the state in order to develop policies and strategies to further this goal. In this regard, land development planning must seek to balance the constitutional mandates to conserve and protect the natural resources and scenic beauty of the state (Article II, Section VIII) with the rights to acquire, possess and protect private property (Article I, Section II) through the due processes of law (Article I, Section IV).

III. BACKGROUND

In 1975, the Division of State Planning completed several documents that have contributed significantly to the development of policies in the plan. The documents are the State Land Development Guide, the General Soils Atlases, the Green Plan, the South Florida Study, the Special Project to Prevent the Eutrophication of Lake Okeechobee and a Rural Development Study. Other activities underway in the Division of State Planning include a State Land Use Information Program, and various elements of the State Comprehensive Plan. These activities have also provided a research base for policy development.

Other ongoing major land planning activities that have been or will be integrated with the State Land Development Plan include the coastal zone management program, water quality planning under Section 208 of the 1972 amendments to the Federal Water Pollution Control Act, water use planning, environmentally endangered lands program, state owned lands plan, outdoor recreation planning, public investment planning, forest-land use analysis and classification program, solid waste planning and local government comprehensive planning.

IV. SCOPE AND INTENT

The State Land Development Plan does not constitute a mandate for or against development, and is not a regulatory mechanism or an exercise of police power. It is intended to provide: 1) guidance to public and private land development; 2) a basis for executive and legislative decision-making at the local, state and federal levels of government; and 3) a broad framework to assist local, state and federal agencies in land use planning and management.

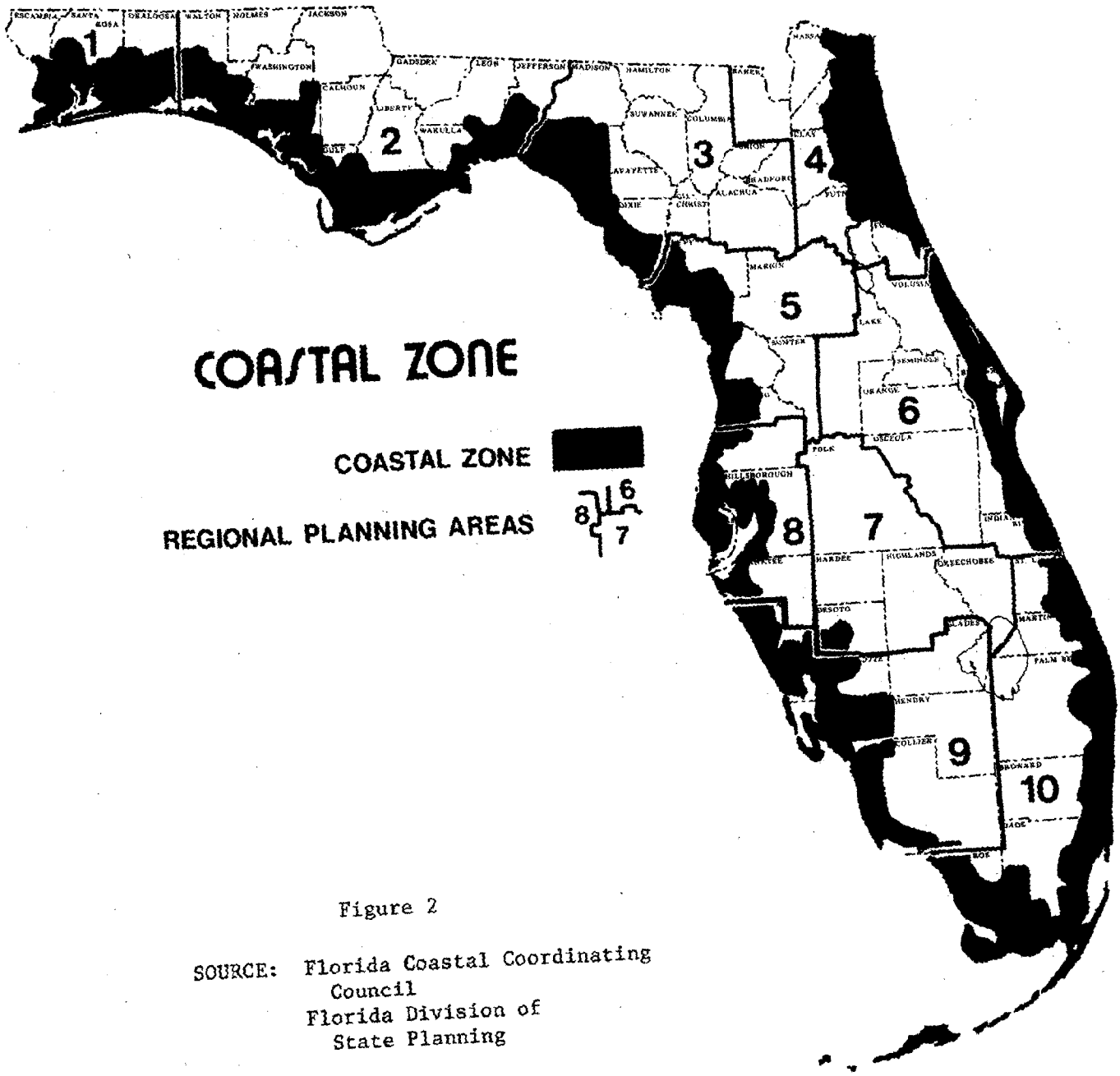


Figure 2

SOURCE: Florida Coastal Coordinating Council
Florida Division of State Planning

V. DEFINITIONS

For purposes of clarity and understanding, the following definitions will apply throughout the document:

Land - the earth, water and air, above, below or on the surface, and including any improvements or structures customarily regarded as land.

Development - the carrying out of any building or mining operation or the making of any material change in the use or appearance of any structure and the dividing of land into three or more parcels.

Structural development - development which constitutes a structure on, above, or below the land surface, such as buildings, roads, canals, dams, mines and airstrips.

Public facilities - development which provides a public service. These include transportation, utilities, recreation and cultural facilities, water management, and other community facilities.

Goals - descriptions of desired end states.

Objectives - identifiable intermediate states constituting progress toward a goal.

Policies - guidelines used to attain objectives.

VI. METHOD OF APPROACH

The development of this plan is based upon recognition that development of the land and growth of the state is a manifestation of the interaction of the social and economic systems with the land as the basic resource. Formulation of policies required: (1) an understanding of the fundamental relationships, principles and laws of physical science and society; (2) recognition of land development issues, problems and opportunities in the state; and (3) a knowledge of existing state and local policy. This information was obtained from scientific study, legislative research, and interaction with federal, state, regional, and local agencies and with the private sector.

A. Policy Development

Overall Land Development Goals and Objectives

Careful study and analysis in the following areas were prerequisites to overall plan development: (1) identification of social, economic and governmental problems associated with development; (2) identification of resource needs and conflicts; (3) analysis of mechanisms available for managing and controlling growth and development. These studies and analyses enabled the establishment of an overall state goal for growth and development of the state and the development of overall state objectives, policies and strategies to guide growth and development. These policies apply to development in central cities, urbanized areas, small communities and the rural countryside. The plan establishes a perspective from which to examine issues, evaluate alternatives and establish priorities for development at all levels of government.

Land Resources

The purpose of this section of the plan is to guide the utilization of land resources which are basic to land development. Land resources were divided into ten categories for study and analysis. Study and analysis included (a) description of resource (or area), (b) values of resource, (c) demands on the resource (or problems), (d) interaction or relations to other resources, and (e) economic and social implications of management alternatives.

Transportation and Electric Power Facilities

The purpose of this section is to lend special attention to two areas of major public investment in order to recognize these investment types as potential tools for guiding growth and development.

Study and analysis included (a) land use problems and resources conflicts associated with these facilities, (b) associated social and economic problems, and (c) potential for guiding growth and development.

Implementation

The purpose of this part of the plan is to: (1) identify the roles and responsibilities of various levels of government for implementation of proposed policies; (2) identify existing mechanisms which should be used to implement portions of the plan; (3) offer recommendations, ranging from administrative action to legislative action, to assist in implementing the plan; and (4) identify strategies for plan implementation.

B. Continuation of Planning Efforts

Review and Update

After analysis and preliminary policy formulation, the draft plan was submitted to federal, state, regional and local agencies for review. Additionally, the draft plan was presented and discussed at six public meetings throughout the state. All comments were carefully considered and incorporated, where feasible, into the document. A twelve-member policy advisory council advised and assisted in making necessary modifications and preparing the final document.

Because the State Land Development Plan is a part of a continuous process of land planning, the plan will be reviewed annually to assess the need for modification and updating. As other elements of the State Comprehensive Plan and other federal, state, regional, and local plans are completed, changes to the State Land Development Plan will be made as appropriate.

Areas of Major Development Potential

This portion of the plan defines areas of major development potential and discusses the general methodology to be used and efforts to date in the development of this program.

LAND DEVELOPMENT GOALS, OBJECTIVES, AND POLICIES

I. OVERALL LAND DEVELOPMENT GOAL, OBJECTIVES, AND POLICIES

Overall Goal

Achieve the highest long-term quality of life for all Floridians consistent with sound social, economic and environmental principles through proper land development.

Overall Objectives

1. Protect and promote the health, safety, social and economic well-being of all Floridians by properly managing land development.

2. Manage land development in a manner consistent with the values and needs of the citizens of the State and the concept of private property rights.

3. Achieve optimal economic benefit of land use and development through efficient land management and resource utilization.

4. Maintain and enhance the quality of the environment by the proper use and development of land.

5. Use energy and natural resources prudently and efficiently in the use and development of land.

6. Distribute growth and development in the state in a manner consistent with support capabilities of available resources.

Overall Policies

1. Base land use decisions regarding growth and development of an area, primarily, on an assessment of the capabilities of resources, using the latest practicable techniques and technology, including natural and man-made systems, and on an assessment of the total short- and long-term social, economic and environmental costs and benefits of supporting and maintaining such development.

The capability of an area's social, economic and environmental resources to support and maintain development may act as a limiting factor to future development. Analysis of the total social, economic and environmental costs of development should be compared to the benefits expected to occur in order to rationalize land use decisions. Government should carefully evaluate its resource assets in order to determine its short- and long-term capabilities to support further development and limit development when resource constraints to development outweigh public benefit.

2. Encourage the coordination of planning at all levels of government to insure the compatibility of development objectives.

Autonomy can be a significant limitation to effective planning implementation. Planning coordination and review among affected federal, state, regional and local agencies can serve to identify conflicts and duplication among plans and projects and identify opportunities for improving development objectives, plans and programs.

3. Require coordination of planning and regulatory functions in land use and related activities including water quality and quantity management and regulation, air pollution control and noise abatement programs.

The planning and regulatory functions for land and related resources shold be closely coordinated to insure maximum achievement of proper resource utilization objectives and avoid conflicting management objectives.

4. Influence the timing, distribution, type, density, scale and design of development through the coordination of land development proposals with state and local comprehensive plans and public investment programs to insure the availability of adequate public facilities, services and other resources.

Government can influence the pattern, timing and character of development in many ways, both directly and indirectly . These include the development of public facilities and services, the regulation of private development, the use of incentives, and the use of technical assistance programs and persuasion techniques. The use of these implementation measures, however, must be based on a solid foundation of state, regional, and local comprehensive planning and programming. Coordination of development proposals with comprehensive plans and judicious application of implementation measures can assist government in programming the use of resources and in the provision of public facilities and services consistent with development objectives and policies.

5. Protect and maintain the desirable social and economic characteristics and functions of urban areas in a manner consistent with the capabilities of the natural and man-made systems of the area.

Approximately 87 percent of the state's population is in urban areas which occupy about 10 percent of the land area of the state. These areas provide for certain social and economic needs of their residents. Future planning for the state should therefore recognize the need to protect and maintain the urban areas. Nevertheless, undesirable characteristics of excessive urban growth, such as freshwater depletion, water and air pollution, and sprawl into sensitive or hazardous natural areas, agricultural land or high value mineral deposits, are incompatible with proper resource utilization. Urban areas should not grow to the extent that they exceed the ability of the natural and man-made systems in the area to function properly.

6. Encourage the revision of existing land development regulations, where necessary, to allow innovative land development patterns and designs aimed toward more efficient use of public facilities, energy, land and other finite resources.

Land development should be channelled in an orderly manner that will produce an economically efficient and satisfying environment and restrict waste of energy, land and other finite resources. However, many existing land development regulations discourage efficient and pleasing development.

Land development regulations which allow innovative development patterns and designs, such as planned mixed-use, mixed-density or cluster development, can accrue benefits both to the residents and the community in the form of: (a) a mixture of housing types for a cross-section of social groups; (b) pre-planned neighborhood community facilities; (c) reduced costs for transportation and other public facilities and services due to activity concentration; and (d) creative architecture and utilization of open spaces. Efficiencies in land and energy use that seldom accrue to traditional patterns of land development are more often possible with innovative development patterns.

7. Provide predictable regulatory programs for land use and related resources.

Regulatory programs need to be predictable so that developments which are in compliance with state and local plans are not unnecessarily delayed by frequently changing regulations.

8. Utilize the capabilities of natural systems to perform beneficial work as an alternative or complement to high cost structure and technology, consistent with protection or enhancement of these resources.

Natural systems can be utilized to assist in performing many of the same functions as high cost structure and technology. Use of natural systems to perform these functions can avert many of the extreme costs and possible environmental damages incurred by development practices which introduce structures or technology to achieve the same degree of operational effectiveness.

Carefully planned development could use wetlands and submerged lands, to some extent, for water cooling and purification with no significant adverse effects on these natural systems. Suitable upland areas and some wetlands can be used, within limits, to filter secondarily treated sewage and urban runoff. Protection and utilization of aquifer recharge areas for replenishing groundwater supply can indirectly reduce expenses incurred in transportation of water for public supply. Trees and other vegetation serve as noise barriers around transportation, industrial and other noise-producing facilities and provide shade for cooling as an alternative to engineered cooling systems in residential development.

9. Encourage private industry to develop environmental control technologies to achieve land development consistent with conservation and enhancement of the state's environment.

Incentives such as subsidies, regulatory variances and tax breaks are possible mechanisms to encourage private industry to develop innovative environmental control technologies.

10. Encourage the provision and maintenance of adequate public facilities in already developed areas and control further growth and new development in areas where public facilities and services are overburdened.

In order to alleviate problems associated with inadequate public facilities and services throughout the state, high priority should be given to the provision and maintenance of needed facilities in already developed areas. However, in areas of the state where public facilities and services are currently stressed or where inadequate resource support capabilities exist, population increases and new development should be controlled commensurate with coordinated development or improvement of these public facilities and services. Assuring that public facilities are provided is the responsibility of government and such facilities shall be provided timely to accommodate all approved development plans.

11. Encourage the revitalization of deteriorating areas in urban centers to protect existing investments, maintain the economic functions in urban centers and conserve land resources.

Redevelopment of urban core areas is not only a mechanism to assist in reversing urban sprawl, but also a desirable end in itself. Recycling previously developed areas conserves land and other natural resources by decelerating the consumption of undeveloped land on the urban fringes, utilizes existing public facilities and services to support redevelopment activity, and, with the reintroduction of commercial activity, revitalizes the economic functions of the central city.

The continued growth on the fringes of urban areas has created a phenomenon known as "urban sprawl." The effects of urban sprawl include: 1) premature commitments of undeveloped land; 2) increases in the costs of public facilities and services as a result of expansion to isolated fringe development areas; 3) increases in the consumption of energy, land and other natural resources; and 4) an economic decline in downtown areas as a result of decentralization of industry and business.

12. Encourage the promulgation of land development regulations by governmental agencies to protect public investments from development which would adversely alter the effective functioning of these investments.

Because public investments represent such an enormous governmental expenditure, these investments should be protected from development whose location or design may adversely affect their functions. For example, development regulations might limit the location of residences or the height of structures in the flight path leading to airport runways. In addition, regulations could guide development practices in aquifer recharge areas in order to protect the integrity of the area's water supply. These measures could forestall health and safety hazards which could occur if adverse uses were permitted.

13. Encourage the joint development and use of public facilities and services, without regard to jurisdictional boundaries, to maximize total public benefit through economies of scale.

Development of public facilities and services is one of the largest categories of expenditure for government. For certain categories of public facilities and services, large-scale production of services is more efficient and cost per unit of service is lower than in a smaller-sized facility. When such economies of scale apply to an activity, joint development and use of large-scale operating facilities, rather than separate development and use of several facilities, can result in lower costs to each governmental unit participating and reduce duplication of effort.

14. Encourage land development mechanisms which will enable the use of natural resources for resource-based economic functions.

Some economic activities are dependent on the use of a specific natural resource; such activities are termed "resource-based." For other activities, location near a specific natural resource is just incidental to development. Recognition by government of the location needs of resource-based development can result in a redirection of development to areas where their location would avoid precluding future resource-based development. For example, the major springs of the state (such as Silver Springs) can accommodate excellent recreation-oriented development, provided these resources are not committed to uses (such as navigational channels), which preclude or remove their inherent recreational potential.

15. Guide growth and development to economically underdeveloped areas consistent with the capabilities of natural and man-made systems available to the area.

There are areas of the state where population is relatively sparse, growth is slow, and per capita income is below average. These economically underdeveloped areas are usually able to accommodate more intensive use of land resources. Properly managed growth and development in these areas could improve the social and economic opportunities of the area's residents and still maintain resource system integrity.

16. Allocate the newly served residents an equitable share of the cost of expanding public facilities.

The costs of expanding or upgrading public facilities and services which would benefit a community at large should be allocated proportionately among all residents. However, if the expansion of public facilities and services benefit only new users and are provided by governmental agencies ahead of scheduled capital investment programs, then the new users should assume the costs.

17. Assure that land use restrictions and regulation protect the rights of private property owners in accordance with the provisions of the Florida and U. S. Constitutions.

Government should undertake the necessary studies and analysis to determine at what point land use restrictions and regulations should be considered a taking of private property or at what point such restrictions and regulations limit the use of property to the extent that financial or other relief should be provided. Such studies should be comprehensive, balanced and objective and shall make recommendations on all alternatives.

18. Encourage resource conservation and, where efficient, the recovery and reuse of resources, particularly those which are limited and diminishing in supply.

Whereas, the United States has only about seven percent of the world's population, it uses almost fifty percent of the earth's industrial raw materials. It is estimated that per year, U. S. consumers use 120 million tons of iron and steel, 6 billion barrels of petroleum products, 93,950 million gallons of gasoline, 44 billion board-feet of lumber and 50 million tons of cement. They discard 7 million cars, 38 billion bottles and jars, 60 million tons of paper, 76 billion cans, and 7.6 million TV sets (over 3.5 pounds of waste per person per day). The nation and state are running out of natural resources and oftentimes needlessly throwing resources away and polluting the environment in the process.

There are numerous methods of recovering and reusing resources. Examples are: urban restoration; incineration of municipal waste to produce electricity; composting of municipal wastes; generation of methane gas from sewage; reuse of glass bottles and paper bags; recycling of paper, glass, and cans to produce the same product. It is important that the state take action towards resource recovery and reuse.

II. LAND RESOURCES OBJECTIVES AND POLICIES

Land resources are the components of the land. Two components, water and air, were derived directly from the definition of land.

It is recognized that the various resources interrelate and support each other, and that they frequently overlap geographically. Understanding the dynamics of the entire system of land resources and their relations to the social and economic systems enabled the development of objectives and policies for each land resource. The land resources are listed below.

(1) Air
(2) Uplands
(3) Wetlands and Submerged Lands
(4) Water Resources
(5) Soils
(6) Agricultural Lands
(7) Minerals
(8) Amenities
(9) Beaches and Dunes
(10) Natural Hazard Areas.

A. Air

In comparison to many other states, Florida has a clean atmosphere. This is due to several factors, such as the lack of concentrations of heavy industry, but mostly to the natural climatologic and topographic conditions of the state.

The meteorological factors which aggravate air pollution do not occur frequently in Florida, because of the general pattern of the terrain, trade wind circulation and the land-sea breeze effect. The air over the state is typically unstable, resulting in the development of cumulus clouds and thunderstorms which disperse pollutants to higher altitudes.

However, air quality problems do occur in the state to a limited extent. The Department of Environmental Regulation recognizes and monitors six major air pollutants in Florida: carbon monoxide, hydrocarbons, particulates, sulfur dioxide, nitrogen oxides and photochemical oxidants. Tampa and Jacksonville have experienced significant air pollution problems, especially with photochemical oxidants and sulfur dioxide. In the central Florida phosphate mining district, fluorides, generated during mining and refining processes, continue to be a problem. (For example, it has been reported that cattle develop a disorder known as fluorosis as a result of consuming grasses containing high levels of fluorides.) Air pollution could increase substantially in the future if growth continues at its present rate and in the same distribution patterns as have occurred in the past. Population

increases in dense urban areas result in greater concentrations of automobiles and further air quality degradation by carbon monoxide, nitrogen oxides and hydrocarbons. Increased demands for power result in additional pollutional loads from power plants, especially in the form of sulfur dioxide and particulates. Pollution from this source may become more important in the future as cleaner fuels such as petroleum and natural gas become scarce.

As described in Chapter 380.031(6), Florida Statutes, and in this plan, air is defined as part of the land. The logic of this definition should be clear from the above discussion: man's use of the terrain, the density and location of urban areas, transportation patterns, mining activities, power generation, and other activities such as forest and agricultural fires, incineration of solid waste and wind erosion directly affects the quality of the air. Conversely, the degraded air resulting from terrestrial activities adversely affects man in the form of respiratory diseases and property damage and a host of other harmful effects. In the same sense that man has no choice but to live on the land, he has no choice but to breathe the air, whatever its condition.

In light of the above, it is critical that land planning and air quality planning be closely integrated. In this regard, it should be noted that, pursuant to the Federal Clean Air Act and Chapter 403, Florida Statutes, the Department of Environmental Regulation prepared an Air Implementation Plan in 1972 to implement various requirements of these acts. The Department is in the process of preparing "Air Quality Maintenance Plans" for Duval, Polk, Hillsborough and Pinellas Counties, to assure that air quality standards are met in the future. Both of these planning efforts recognize the intimate connection between air quality and land use.

The following policies are intended to protect and enhance the quality of the state's air through proper land development planning.

Objective

Protect and improve the quality of the air.

Policies

1. Insure that the type, location, design and density of development is consistent with the maintenance of clean air.

Florida is fortunate to have few serious air quality problems which are limited to only a few geographical areas of the state. This fact is most important to the maintenance of the state's tourist- and retiree-oriented economy. Land development in these areas should be planned to avoid further degradation and, where feasible, improve the quality of the air.

2. Locate and design transportation systems to minimize air quality degradation.

Transportation is the number one source of air pollution in the United States. These facilities should be located and designed to avoid high concentrations of pollutants in any given area. Mass and rapid transit systems can help satisfy transportation needs, provide an effective means of minimizing air pollution problems and assist in energy conservation in urban areas.

3. Encourage the location of power plants in areas where meteorological conditions will disperse and transport pollutants away from populated areas and avoid accumulations of pollutants.

In some areas, electric utilities are the largest source of air pollution. For example, in 1974 in Hillsborough County, electric utilities represented 52% of the total pollution load. Certain terrains and meteorological conditions are known to result in air quality problems created by power plants; i.e., valley locations and air inversion conditions. Accumulation of pollutants may occur as a result of power plants being located in areas where air stagnation or recirculation occur.

4. Regulate and coordinate forest and agricultural burning to avoid heavy air pollutant loads.

Controlled burning, as a management practice on forest and agricultural lands, is a useful and beneficial tool in forest fire prevention, land clearing, maintaining desired successional stages, and nutrient recycling. An alternative to prohibiting these activities is to phase or coordinate them so that large pollutant loads resulting from simultaneous burning are avoided.

5. Seek alternatives to conventional methods of solid waste incineration which waste resources and create air pollution.

The Resource Recovery and Management Act (Sections 403.701-.713, Florida Statutes) implies that solid waste represents a vast and essentially untapped resource. Conventional methods of burning these resources are wasteful and create air pollution. The state should actively search for new methods to recover, manage and recycle these resources.

6. Require dust control measures for construction, demolition, mining and activities where traffic by heavy vehicles results in significant air pollution.

A significant source of particulate air pollution, in many areas, is the dust generated by heavy truck and equipment traffic on unpaved roads and other cleared areas.

7. Seek to minimize ambient fluoride concentrations resulting from phosphate processing operations.

DER's rules (17-2,17-4), pertaining to air pollution controls and permitting, should be expanded or a new rule instituted to deal with the allowable concentrations of fluorides in the air and on the land near phosphate processing plants.

8. Discourage aerial dissemination of pesticides and other toxic substances when atmospheric transport of these substances may result in hazards to natural systems or people.

Pesticides and other biocides can be transported by the wind. Some of these substances are extremely toxic in very small amounts to lower forms of animal life and plant life. Extreme care must be taken in the aerial application of these materials to avoid destruction of biological resources. Improper aerial application of toxic substances can also contaminate fresh water supplies and directly endanger human health.

B. Uplands

The uplands form part of Florida's three physiographic divisions: the Northern Highlands, which extend from the westernmost end of the Panhandle to the northern Withlacoochee River; the Central Highlands, which reach from the Northern Highlands in the north almost to Lake Okeechobee in the south; and the Coastal Lowlands, which are adjacent to the coastline of the Gulf and Atlantic, including all the land south of Lake Okeechobee. Most of the two highland divisions are uplands, as are the coastal ridges, ancient marine terraces and low hills of the Coastal Lowlands. Figure 3 shows the upland areas of the state. For the most part, uplands are characterized by relatively high elevations, low water tables and typically well-drained soils. These characteristics make uplands generally better suited for development than wetlands and other low-lying areas. With some exceptions, the ecological systems of the uplands are generally more tolerant of development and less susceptible to degradation.

This is not to say that land development and growth in the uplands should occur haphazardly, for there are factors in the uplands that may limit development just as there are factors that will favor development. By examining the important resources located in the uplands, it is obvious that competing uses for the same land may exist. This is where proper planning becomes important. The upland resources are valuable but limited and should be optimized by evaluating each resource as to the potential use which is most beneficial. For example, a site with multiple potential, such as timber production, mineral extraction, and structural development, could be managed for timber until the mineral is extracted then reclaimed and used for other purposes.

While some areas may have competing potentials for development, other sites in the uplands have factors that severely limit potential for a particular development. Natural hazards such as flooding, sinkholes, and inadequate foundation materials may restrict structural development. Areas with poor and infertile soil will limit agricultural use and areas without an economic resource base cannot be expected to emerge as centers of industry. As in areas with competing uses, such areas must be evaluated and planned as to their optimum use.

Sites and regions must also be evaluated for factors that promote development, especially in counties with weak or unstable economies, as it is the intent of this plan to guide the growth of the state to ensure economic vitality, as well as the best use of the air, water and land resources. The Florida uplands holds the highest potential for meeting these objectives. Wise land use planning and development of the uplands can maximize the potential of economic resources while protecting the air, water and other natural resources.

It is not the purpose of this portion of the Plan to advocate that no further growth and development should occur in the coastal zone of the state. It is recognized that, for the most part, growth and development in urban and rural portions of the coastal zone will continue to occur and that properly managed growth will be beneficial to the state. This plan does, however, recognize numerous resource related problems in the coastal zone created by intensive growth and development.

In order to prepare to accommodate an estimated additional six million residents by the year 2000, the state must plan for their distribution to insure protection and continued viability of its social, economic and natural systems. In this regard, distribution into the uplands (including uplands in the coastal zone) would constitute an effort to accommodate growth which would more efficiently utilize the state's resources, enhance the economic and social well-being of many depressed areas and help alleviate the stresses on the coastal resource systems.

The following policies are intended to emphasize the importance and role of the uplands in the growth and development of the state.

Objective

To accommodate future growth and development of the state in the uplands.

Policies

1. Plan for and encourage new land development and economic and population growth in suitable upland areas rather than in areas with resource limitations and constraints, such as certain areas of the coastal zone and wetland areas.

Upland areas, both in the interior of the state and in the coastal zone, are usually best suited for development. Within the limitations and constraints of affected resources, development is generally acceptable in upland areas. These areas, for the most part, have better soils for development and are less likely to encounter water quality problems than wetlands, beaches and other low-lying areas.

2. Guide and coordinate development in upland areas to insure compatibility with resource constraints and opportunities.

Growth and development should not occur haphazardly in the upland portions of the state. Planning for development in these areas should adhere to principles of proper resource utilization as described throughout this plan.

3. Plan for and encourage structural development in upland areas to minimize losses of prime and unique agricultural land, important mineral resources, rare natural features, and important aquifer recharge areas.

Upland areas contain several resources of state significance. Development in and around agricultural land and mineral resource locations should be carefully designed and located so as to minimize the adverse impacts on these resources. Planning techniques may include time-phased development, cluster development, transfer of development rights and other special development regulations and tax incentives. Local governments should closely coordinate development in important aquifer recharge areas with water management districts to insure long-term protection of water resources. Development should be designed and located to protect rare natural features and at the same time enhance the overall quality of the developed area.

4. Guide growth and development to enhance the well-being of residents in socially and economically depressed upland areas.

Certain portions of the state are characterized as having lower educational levels, lower per capita and household incomes and less infrastructure, business and industry than the rest of the state. Properly managed growth and development in these areas would enhance the social and economic well-being of residents of these portions of the state.

C. Wetlands and Submerged Lands

Wetlands and submerged lands are biologically among the earth's most productive ecological systems. It is for this reason that these systems constitute a vital natural resource of the state.

An inventory of wetlands by the U. S. Department of Interior in 1954, which included open water (both fresh and salt), tidelands, freshwater swamps, marshes, meadows, bogs, etc., and seasonally flooded lands, found that 54.02 percent or 18,716,331 acres of the state are wetlands and submerged lands. Adjustments to this data, to exclude the open water and seasonally flooded categories, indicate that 11,786,923 acres or 34.02% of the land areas of the state are wetlands. Results of a study by the Florida State University Department of Geography, based on 1968-1969 Department of Transportation data combined with the Florida Coastal Coordinating Council's data, which excluded open water and seasonally flooded areas, indicate that 8,553,133 acres or 27.4 percent of the land area of the state are wetlands. Since significant amounts of wetlands and submerged lands have been drained and filled after these studies were completed, the acreages and percentages cited above are probably higher than the actual amounts in existence today. See Figure 3.

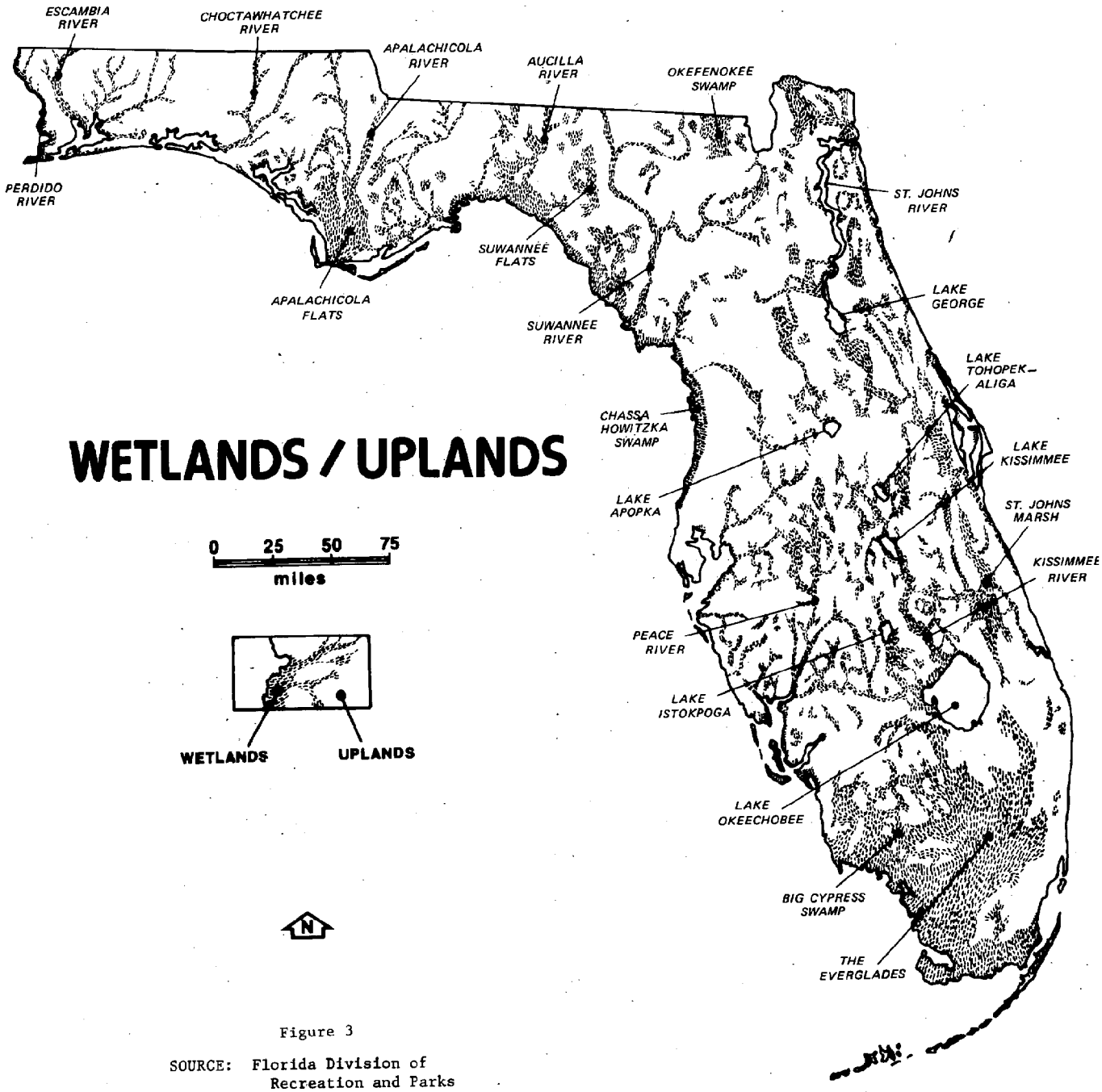


Figure 3

SOURCE: Florida Division of Recreation and Parks
Florida Division of State Planning

Wetlands and submerged lands, as addressed in this plan, consist of brackish and saline coastal estuaries, marshes, and offshore waters and the interior freshwater lakes, rivers, streams, marshes, wet prairies and swamps. Although all wetlands have value, it should be recognized that these specific values may vary from one wetland area and type to another.

The coastal and offshore wetlands and submerged lands are basic and vital to the state's economic and environmental well-being. By virtue of their natural character, they heavily support the tourist, recreation and commercial fishing industries, the worth of which approximates $2.5 billion annually according to the Environmental Land Management Study (ELMS) committee in 1973. In 1974, the coastal and offshore waters provided 172.4 million pounds of fish and shellfish at a dockside value of $68.1 million to the marine fisheries industry of Florida. The coastal and offshore waters, in turn, are nourished and diluted by inflows from the interior of the state via rivers and streams. To emphasize this point, it has been established that the livelihood of Apalachicola Bay, which produces 80% of the state's oysters, is dependent upon the Apalachicola River for nutrients and freshwater.

The numerous rivers, streams, lakes, freshwater marshes and other wetlands, as well as being vital sources of freshwater, are basic to the natural environment of the state. The beauty of these wetlands and submerged lands and their wide variety of plants, animals and birds are a part of the state's natural heritage. They account largely for diversity of recreational choice, whether it be fishing, bird watching or the simple contemplation of a future outdoor experience.

Wetlands and submerged lands directly serve as habitat and breeding areas for fish, shellfish and other aquatic animals and numerous bird species as well as provide organic materials which nourish other ecological systems. Forested wetlands are a major source of cypress, oak, and other hardwood timber products. All vegetated wetlands serve important functions in erosion control and in filtering nutrients, heavy metals and other substances from water. All wetlands are natural floodwater retention areas. Wetlands also tend to assist in moderating the climate and dampening extreme environmental oscillation such as noise, dust and water pollution.

Some wetlands serve as barriers against hurricanes, tidal waves, and extremely high tides and as aquifer recharge areas.

Although often overlooked and misunderstood, wetlands, due to their natural values and functions are closely related to important social and economic values of the state.

It is estimated by the U. S. Department of Interior that over five million acres of wetlands were destroyed in the state between 1850 and 1971. This was accomplished primarily by draining for mosquito control and agricultural development in earlier times. Within the past decade, wetlands and submerged lands destruction has resulted, by and large, from urbanizing activities which include draining and filling by dredging of canals, channels and ditches, disposition of foreign material, impoundment or diversion of water and other structural development.

Whereas wetlands destruction has been important to the development of the state, a balance must be obtained which will allow growth and development to occur, in a manner consistent with the protection and best use of these resources. The following policies are intended to encourage the protection and use of wetlands and submerged lands to insure the long-term best resource use.

Objective

Retain and protect the values and functions of wetlands and submerged lands.

Policies

1. Encourage the development and use of wetlands and submerged lands only for purposes which are compatible with their natural values and functions.

The best uses of the state's wetlands and submerged lands are water storage, outdoor recreation, wildlife habitat, and in certain areas, commercial fishing.

2. Encourage the use of wetlands commensurate with their natural functions and capabilities as a substitute for or supplement to technology and structures.

Wetlands have, within limitations, natural capabilities for water storage, wastewater nutrient (nitrogen and phosphorous) assimilation and sediment removal. Such uses of wetlands could result in savings of monetary and other resources. Some wetlands can provide livestock grazing range during certain seasons of the year.

3. Encourage the reestablishment of wetlands in previously drained areas, where feasible.

During the earlier part of the 20th Century, when extensive wetlands drainage occurred, their importance to the state was not well known. In recognition of their importance, where the opportunity is provided and is feasible, such areas should be allowed to revert to the wetland condition.

4. Allow intensive use of wetlands and submerged lands only for major developments of state significance which, by their general purpose, require location in these areas.

Navigation channels, harbors, port facilities, marinas, water-based industry, electrical power plants, oil and gas exploration and support facilities and transportation facilities, determined to be in the state's best interest, often must be located in wetlands and submerged lands. Sites for such development should be carefully selected and facilities cautiously constructed to ameliorate the damage to the wetland resources. When it is in the state's best interest to construct or allow such development in wetland and submerged lands, positive effort should be undertaken to mitigate resource losses and degradation.

5. Enable wetlands to be reasonably used by individuals for purposes which will not adversely affect the values and functions of these resources.

In addition to the best uses of wetlands (outdoor recreation, water storage, etc.), certain wetlands, such as river floodplains, can be used for sparsely scattered home sites, if properly located and designed, and other low intensive uses, providing state pollution control and other standards and the National Flood Insurance standards are met.

6. Discourage the discharge into wetlands and submerged lands of pollutants or materials in amounts which would destroy or significantly harm their values and functions.

The discharge of solid waste, excessive amounts of liquid waste, fill material and other foreign material into wetlands can be destructive to the natural values and functions of wetlands.

7. Discourage the drainage of wetlands and submerged lands.

Drainage is incompatible with the viability of wetlands and submerged lands.

8. On state-owned wetlands or submerged lands, prohibit commercial, industrial and residential development and other development which, by their general purpose, are not required to be located in these areas.

Full-scale urban development in wetlands and submerged lands: (1) can be hazardous to human life and property; (2) is significantly detrimental to the values and functions of these areas; and (3) is an inefficient use of resources. This does not preclude reasonable use of certain wetlands for purposes discussed in Policy 5 above.

9. Give maximum protection to wetlands and submerged lands that have been categorized as having special significance to the state.

The Florida Coastal Zone Management Atlas is useful in identifying wetlands and submerged lands of particular significance in the coastal zone. The Department of Environmental Regulation has assigned water quality classification (in categories) to the water in wetlands and submerged lands. Water Management Districts assign certain wetlands priority values for water storage. Certain coastal and offshore waters are high yield commercial fishing and shellfishing areas and, likewise, need maximum protection.

10. Require development in adjacent upland areas to be located, designed and constructed so as to minimize the adverse impacts on the values and functions of wetlands and submerged lands.

Due to hydrological and topographical characteristics, wetlands and submerged lands can be adversely affected by improper land use practices in upland areas.

11. Encourage research aimed at assessing the relative values of various wetlands and submerged lands in the state.

Further information is needed regarding the capabilities of various wetlands and submerged lands: (1) as substitutes for technology and structures; (2) for agricultural uses; and (3) to support human populations.

D. Water Resources

Water is a dynamic resource whose quantity and quality are influenced by variations in the local hydrologic cycle. The amount of surface water or groundwater being used, or the amount available for potential use, is a consideration in determining quantity. Although the quantity of water is finite, man considers it a renewable resource because the amount is continuously maintained and replenished by the hydrologic cycle; however, replenishment of resource depletions may not occur on a seasonal basis and may take several years. Water quality reflects the condition of water--the concentration of certain substances which may limit its use by man and nature.

Society's dependence on water is universally acknowledged. The continued viability and, ultimately, the survival of human and natural systems depend on reliable water supplies of adequate quantity and quality. Water plays indispensable roles in the transport of life-giving elements and nutrients, the removal and dilution of wastes, the formation and maintenance of landscapes, and the determination of local climatological conditions. If water is in short supply for any of the above uses, it may prove to be a physical limiting factor for human activities. A Land Development Plan must consider the consumptive demands of development on the available water resources and the broader implications of changes in land use on all portions of the hydrologic cycle.

Society has frequently found it necessary to alter some characteristics of the natural hydrologic cycle in order to create conditions more suitable for habitation. Because Florida's water resources seemed so abundant, long-range land use planning and water resource management were not systematically coordinated and lagged far behind the pace of development. As a result, misuse of the land and poorly conceived development patterns have often disrupted the hydrologic cycle and adversely affected water quantity and quality. To insure an adequate supply of water, sufficient storage capacity must be maintained and surface and groundwater levels must be adequately managed to meet demands on a long-term, sustained yield basis.

Consumptive withdrawals of water for human use are a small portion of the total freshwater available to the state. It is estimated that water consumed is 5% or less of the total amount available. However, these uses are concentrated in primarily large urban areas to the extent that, in some cases, excessive demands are being placed on local water supplies. Also, land development practices, such as drainage and filling, have reduced the water storage potential of wetlands, flood plains, and water bodies. Similar practices have reduced groundwater storage by accelerating outflows as runoff to the sea.

The characteristics of land development which have decreased water quantity have also led to problems of water quality. Water resources surrounding most urban areas are degraded by the large volumes of concentrated wastes they receive. Many streams, rivers, and lakes receive increased amounts of runoff containing urban and agricultural wastes. Although many natural communities have an inherent ability to rehabilitate wastewater containing low level pollutants, many of the most desirable types for that purpose have been destroyed or disrupted. Groundwater supplies, especially in coastal regions, are subject to potential contamination due to saltwater intrusion stemming from drawdown of the aquifer.

The increasing cost of remedial measures to improve water quantity and quality has affected or will soon affect most citizens. Technology necessary to provide water from remote sources, such as distant wellfields (e.g., Tampa Bay, Naples) or conveyance canals for wellfield recharge (e.g., Lake Okeechobee, Southeast Florida), is extremely expensive. Advanced wastewater treatment and disposal facilities and desalination plants require financial commitments beyond the capabilities of many communities.

The objectives and policies which follow recognize existing problems while seeking long-term solutions. To insure comprehensiveness, policies are keyed to individual components of the hydrologic system while keeping the larger system in perspective.

Objectives

1. Maintain adequate water resources throughout the state to meet all of the state's needs.

2. Restore, where feasible, degraded and depleted water resources to levels which will enhance their benefits to the public.

General Policies: Water Quantity and Quality

1. Provide water for present and future development in the state consistent with sound water resources planning and management.

The supply of water and/or the means to make it available for use are limited. Sound water resource management, founded on a quantitative, supply-based philosophy of allocation, is necessary to insure sufficient water for existing developed areas and minimize water problems in future development.

2. Base land development decisions on quantitative knowledge of the short - and long-term capabilities of the hydrologic units to provide adequate supplies of water.

Water Management Districts, in cooperation with federal, state, and local agencies, are preparing quantitative water evaluations which will identify all major components of the hydrologic cycle and estimate limits of surface and groundwater withdrawals to insure long-term, safe use. These evaluations should establish the limits or opportunities of an area to accommodate future development.

3. Coordinate land use planning and water management to insure the long-range maintenance and enhancement of water quantity and quality.

Land use factors, such as geological, ecological, and human development patterns within an area, greatly influence the hydrologic cycle and thus, the water resources of the area. Long-range management of an area's water resources necessarily implies coordination with land development activities. For example, Water Management Districts need to review Developments of Regional Impact and local government plans concerning water resource matters.

Together, water and land management must insure that development does not significantly disrupt or diminish elements of the local hydrologic cycle and impose demands or limitations on the water resources which endanger the naturally maintained supply. To meet these long-term objectives, management strategies should be flexible and economical. Such criteria will require both input and output approaches of a preventive, rather than remedial, nature.

4. Encourage closer cooperation between state, regional, and local resource planning agencies to assure that water resource information is provided to all levels of government for planning purposes.

Intergovernmental cooperation will make management more effective by hastening response to problems and implementation of multi-jurisdictional programs, reducing the amount of redundant efforts, assuring more equitable taxing and program funding and disseminating data, research results, and new management techniques.

Dissemination of water resource information is beneficial for two purposes. Local governments should be quantitatively informed of their water resource limitations and of opportunities to allow comprehensive planning for the character of their area around those limitations. In addition, sponsors of public and private developments should provide sufficient quantitative information about the impact of the project on the local water resources to allow objective decisions to be made concerning its desirability.

5. Encourage the careful planning of water quality and quantity management practices to avoid conflicts between management objectives.

Potential conflicts in water use strategies have arisen which will require extensive analysis to reveal the most suitable choice between alternatives. For example, increases in an area's physical capacity to store water should be consistent with the maintenance or enhancement of a balanced endemic ecological system.

6. Encourage that growth and new development occur in areas where sufficient water resources exist to sustain it in order to avoid aggravating existing water problems or require disproportionate public expenditures for water supply and waste treatment facilities.

It is unwise to continue to accept growth in areas which are already at or near their capacity to provide adequate, inexpensive freshwater supplies. Additional water demands which accompany growth can endanger the integrity of the principal water supply, require exorbitant commitments of public funds to provide additional sources, and diminish the quality of life for all citizens.

7. Encourage interstate water quality and quantity planning programs and agreements.

The northern portion of the state receives surface water flows which originate outside of Florida. Florida has no jurisdiction over the amount of withdrawal from, or waste discharge into, waters beyond its border. To insure the long-term success of developments in Florida which depend on these interstate waters, Florida should enter into agreements with neighboring states. Such agreements would designate mutually acceptable water quality and quantity standards for interstate waters and establish strategies, plans, criteria and procedures for resolution of problems.

Specific Policies: Water Quantity

1. Encourage the retention and storage of surface water in naturally occurring storage areas, such as lakes, streams, and wetlands consistent with the maintenance of the area's long-term productivity and stability.

Many areas within Florida still contain substantial areas of wetlands or surface water bodies which, in their natural state, function to store and conserve water. If such areas are recognized and incorporated into water resource and land use plans, the impact of development on the natural water cycle can be lessened. Also, the use of natural storage areas can reduce monetary and energy costs of man-made structural alternatives.

2. Discourage development practices which necessitate or contribute to overdrainage of land and soils.

Remedial measures should be taken to reduce the amount of water lost from existing developments. Water control practices have often caused excessive drainage. That is, excess water has been rapidly removed during wet periods and inefficient provisions incorporated to reduce water loss during dry periods when drainage is not necessary. New developments should be encouraged to employ imaginative design alternatives which minimize the need for drainage instead of the traditional canals and channelization. Developments should be designed to accommodate seasonal water level fluctuations with a minimum of drainage, e.g., building up or diking in.

3. Discourage attempts to modify weather patterns until adequate scientific investigation establishes the consequences of such actions.

The long-term effects of weather modification are largely unknown, but the consequences could be enormous, even global in scope. For example, cloud-seeding to provide water for one area may deny water necessary to sustain the normal hydrologic characteristics of another area. Water resource managers should do a better job of managing the earthbound components of the hydrologic cycle (where more data is available), before attempting to manipulate rainfall.

4. Encourage the utilization of water from the local hydrologic basins to accommodate new development rather than through transfer of surface water between hydrologic basins.

The transfer of freshwater between basins is likely to result in undeterminable ecological consequences, both in the immediate water body or water course and in estuarine reaches of the basin, which subsequently affect coastal and offshore resources. The exportation of surface water should be based upon scientific findings that adverse environmental effects will be inconsequential or minimal.

The transfer of surface water from one geographical area to another may have growth and development implications for the area from which the water is taken. The transport of surface water between basins should be based upon consent by the affected local governments after having been fully apprised of all growth implications.

5. Allow the transport of groundwater from one geographical area to another only after confirmation by scientific study that the ground and surface water and related resources will not be adversely affected and after the acceptability of such transports by affected local governments.

In addition to the potential adverse effects of large groundwater withdrawals on the water and related resources, the exportation of water from an area may have significant growth and development implications. Future growth options may be foreclosed in areas where state and local government may wish to stimulate or guide growth. The exportation of groundwater from an area should only occur after the local government from where the water is being exported has been fully apprised of the short- and long-term environmental and growth implications and consents to the export of its area's water.

6. Encourage agricultural users to minimize their demands on water supplies with water management and conservation practices.

At present, agriculture is the largest user of water in the state, and future water use projections indicate that it will continue to be the chief user. Because both acreage under agricultural management and water uses are high, the potential for water savings through management and conservation is large. In principle, agriculture should attempt to use closed water use cycles, where feasible. Management should include

but not be limited to: maintaining higher water tables consistent with crop needs, retaining excess surface water onsite, reusing excess irrgation and wastewater, more efficient irrigation practices, and utilizing native range and crops requiring less water.

7. Encourage the use of water conservation practices throughout the state and require them in urban and industrial areas with water shortage problems.

All citizens should be made aware of the limitations of Florida's water resources and encouraged to practice conservation in their daily habits. Water conservation programs are particularly needed in urban and industrial areas which are experiencing water shortage problems. Such programs could provide for retention of excess water onsite for later use, use of indigenous vegetation for landscaping, encouragement of nighttime watering of vegetation, the use of mulches and reduction of non-essential demands. There is also a need for additional emphasis at the state, regional and local levels of government to systematically inventory free-flowing wells and institute well-planning and management programs.

8. Encourage the provision of sufficient water to insure the long-term productivity and stability of self-maintaining natural ecosystems.

Natural systems provide substantial supportive services to man which are often neglected in water and land use planning. The direct water management roles alluded to in previous policies include other less obvious benefits, such as maintenance of a favorable regional image for tourism and capital investment, protection of development from natural hazards, maintenance of soils, and direct economic benefits accruing from man's harvest of natural products. In order to provide these "low cost services," natural areas must receive adequate supplies of water.

9. Discourage alteration of normal groundwater movements within and between aquifers which may be harmful to the groundwater resources.

Groundwater movements within and between aquifers may involve large quantities of water which maintain adequate aquifer storage. Continued storage capacity is essential in Florida because the majority of freshwater resources comes from groundwater sources. Canals and wells should be properly designed so as not to alter the quantity and quality of these underground movements.

10. Protect and maintain groundwater supplies and aquifer recharge areas through water and land management practices and, where necessary, regulation of development activities.

Large withdrawals of groundwater from an artesian aquifer will cause changes in the potentiometric surface of the aquifer and consequently changes in the levels of the water table aquifer. These changes in turn may result in lower levels in wells, declines in the potentio-

metric surface, lowered lake levels, reduced stream flow, saltwater intrusion, sinkhole formation, vegetation changes or any combination of these effects. Groundwater withdrawals should be regulated to insure that these effects are avoided or minimized. Water wells should be located or relocated to reduce the effect of saltwater intrusion.

Surface water infiltration to the underlying aquifers is the primary mechanism for replenishing groundwater supplies. Developments in areas supporting significant groundwater recharge should be designed and constructed so that predevelopment groundwater levels are maintained. Activities which could diminish recharge by altering surface water-flow patterns or the amount of permeable land surface area should be carefully evaluated to avoid damage to the water resource.

11. Discourage the alteration of groundwater discharges which would adversely affect surface water and related resources.

Aquifers annually release large quantities of groundwater to surface waters. Although this flow of water may be construed as a loss of water potentially available for consumption, such discharges are necessary to prevent saltwater intrusion in coastal areas and maintain base flow in surface water bodies, i.e., springs, streams and lakes.

12. Encourage coordinated federal, state, regional and local hydrological studies of freshwater resources.

There is a paucity of hydrological data on freshwater resources in many portions of the state. Such information is needed in order to plan properly for growth and development, particularly in areas with diminishing water supplies and rapid growth.

Specific Policies: Water Quality

1. Encourage land development and wastewater treatment and disposal techniques that result in minimal point discharges to surface water, where economically feasible.

Much of the attention of agencies responsible for water quality is presently directed toward this end. Waste disposal and treatment methods must be utilized to minimize the impact of existing discharges. A strategy to minimize the impact of wastewater on surface water is to avoid, where economically feasible, the discharge of pollutants into surface waters. This can be accomplished either through land uses which create fewer discharges or waste disposal techniques that treat wastes on the land via land spreading, recycling, and other means.

2. Encourage sound management practices which affect control or treatment of non-point discharges to surface waters.

Many of Florida's surface waters have been degraded by low-level pollution sources, termed "non-point sources." Erosion and sedimentation, mining wastes, stormwater runoff and agricultural (fertilizer, pesticides, animal wastes) runoff are examples. Because most of these pollutants originate over wide areas of land, they are difficult to detect and monitor. However, they can often be prevented by proper land management practices. Performance standards, management techniques, and regulations should be established which can minimize pollution from these sources.

3. Encourage that wastewater treatment strategies be kept flexible and recognize regional or local conditions and requirements.

The state's long-term environmental and economic interests may be best served by a diversity of water treatment strategies designed to yield similar levels of performance. Such diversity would include a mix of technology types and a combination of large-scale and small-scale facilities. Until the energy, economic and growth future is more certain, a diverse group of treatment strategies will provide much experience and possibly prevent a large irreversible commitment of funds and resources. Blanket treatment requirements may limit the use of non-structural alternatives or place unreasonable restrictions on small users.

4. Encourage continued research into the use of non-structural alternatives for wastewater treatment and water quality enhancement as opposed to high cost structural facilities.

This policy advocates the utilization of natural ecosystems for enhancing water quality, where feasible and consistent with maintenance of the long-term productivity and stability of these natural systems. Research has revealed that selected coastal and inland marshes, flood-plain and mangrove swamps, forests and estuaries can effectively remove and sequester substantial quantities of waterborne wastes.

5. Encourage development design and location techniques which require a minimum of water treatment to meet mandatory water quality standards.

Prior planning and judicious deployment of development can prevent the installation of unnecessary, costly treatment facilities. Careful attention to fitting developments to the landscape can minimize non-point sources of pollutants from erosion, stormwater, and agricultural wastes.

6. Encourage the beneficial use or reuse of resources and process by-products, which now constitute pollutants when dispersed into the state's waters.

Recycling and reusing waste by-products and wastewater remove them as contributors to water quality degradation. If water, energy, and material resource shortages continue to worsen, it will become more economically feasible for developers to initiate recycling systems. Water-pricing schedules, which levy higher rates to large-volume users, may also create economic incentives for reuse of wastewater, where feasible.

7. Encourage on-land retention of runoff water as an alternative to construction of treatment facilities.

Retention of runoff is another method of reducing the amount of waterborne substances which reach large receiving bodies. Careful site design and location of developments can reduce runoff and, therefore, the need for facilities to treat runoff water.

8. Carefully regulate and monitor the site selection, operation, and density of sanitary landfills, land spreading operations, deepwell injection and other similar waste disposal techniques which may adversely affect the quality of surface and groundwater.

Intensive surface and subsurface disposal of waste materials can contaminate, by runoff or infiltration, adjacent or underlying surface and groundwaters. Selection of disposal sites must await careful evaluation of soil and drainage characteristics. If necessary, special provisions such as leachate retention ponds, impervious liners and perimeter ditches should be constructed to contain leachates on site. Areas best suited for siting of sanitary land fills are those locations with relatively small amounts of groundwater, and low baseline groundwater quality.

9. Protect groundwater supplies from saltwater intrusion by regulation of withdrawals, maintenance of adequate recharge of groundwater, and prevention of saltwater movements inland through coastal canals.

Potable groundwater supplies constitute one of Florida's most valuable resources. Not only is groundwater abundant (approximately 85% of the state's public supply is from groundwater sources), but it is also the cheapest source to utilize. All developments should observe precautionary measures to assure a long-term supply of high quality groundwater.

10. Closely regulate water-oriented development activities such as dredging, filling, and spoil deposition to minimize water quality degradation.

The lure of Florida's extensive fresh and saltwater shorelines has attracted to these areas the largest concentrations of development. Most of the past activities were undertaken before all of the impacts of development on water quality were recognized. Extensive dredge and fill and shoreline alteration practices have centered in the littoral and intertidal zones of water bodies and have had the following impact on water quality: increased turbidity and oxygen depletions during construction phases; long-term erosion and sedimentation problems after project completion; reduction of natural ecosystems' assimilative capacity through habitat destruction and low-level stress; alteration of natural water circulation and salinity patterns which lead to lowered assimilative capacity, lowered biological production, and oxygen-stressed and overenriched zones of water; and saltwater intrusion. These development practices should be discouraged; instead, new development techniques which reflect the latest innovations in land use design and location should be instituted.

11. Provide maximum protection of water bodies utilized for public supply, shellfish harvesting and outdoor, water-dependent recreation.

The state's surface waters have been classified by use. (These areas have been mapped in the Florida Coastal Zone Management Atlas of 1972.) The higher quality water bodies (Class I, II, and III) have important economic and environmental value to the state depending on their prescribed use. But they are also valuable because they will not, if properly managed, require remedial measures to restore their quality. Special status should be accorded these areas to insure their continued, high quality classification. Regulation and performance standards should be placed on all developments in these watersheds. Such measures should be designed to maintain existing areas and gradually restore areas of a lower classification to highest practical classification.

12. Oppose the dumping of toxic wastes into offshore waters.

The ocean should no longer be considered a depository for society's wastes. The long-term effects of toxic chemicals on marine ecosystems are unknown. Too little is known of physical oceanographic forces to even predict where and how far these wastes will travel. All industrial and governmental organization should be encouraged to dispose of their toxic wastes through careful land disposal or reclamation.

13. Encourage increased monitoring and regulation to avoid indiscriminate waste discharges from commercial and pleasure vessels.

With passage of the Oil Spill Law (Chapter 373, F.S.), Florida has taken a positive step toward regulation of some commercial dumping and cargo handling practices. Comprehensive regulations and guidelines need to be established by the codification of existing laws and promulgation of needed standards. For regulations to be of value, monitoring and enforcement activities will need to be increased. Additionally, the installation of sewage pumpout facilities is needed for marinas in the state.

14. Seek to increase the effectiveness of state and local governments in decision-making regarding offshore oil and deepwater port developments.

Florida's interest in near-shore and on-shore environmental and economic impacts of offshore leasing and development have not been considered in the evaluation process. State and local governments need to make rational trade-off decisions; the range of environmental and socio-economic information necessary to assist in these decisions is not included in the baseline study design. Florida should have more direct input into leasing schedules and environmental studies schedules. Long-term baseline studies need to be initiated far enough in advance of development activities to provide objective information to decision-makers.

15. Encourage increased monitoring and more stringent regulation of off-shore mineral exploration, extraction, and transportation activities.

All control measures necessary to assure that mineral development has a minimum adverse impact on the marine and coastal ecosystems need to be instituted and adhered to. The value of these ecosystems to the state is now established and widely recognized; the net energy of off-shore mineral resources is much less certain. Therefore, while exploration and development proceed, they must be done in ways which minimize the damage and stress to known, valuable resources. A concerted, combined effort of federal and state regulatory agencies and private industry expertise should establish minimum control standards and policies and regular monitoring schedules.

16. Support and encourage efforts to improve oil spill containment and clean-up capabilities.

Accelerated oil development and transportation activities, regardless of the degree of control, will likely cause more numerous and extensive oil spills. Containment and clean-up capabilities should be expanded to assure that such spills are confined to small areas and do not reach on-shore beaches and estuaries. Damage resulting from a recent spill (Summer, 1975) in the Florida Keys revealed the inadequacy of existing facilities to contain spills before they reach shore.

E. Soils

Soil is a basic resource which occupies the upper layer of the earth's surface and consists of a mixture of organic and inorganic material capable of supporting plant life. Soil, just as air and water, is basic to sustaining human life and activities. The most essential use of soil is for food production. Florida is fortunate to have some soils that constitute prime agricultural land or have properties which make them unique for growing certain crops that cannot be grown in other parts of the country. Soil also provides basic foundations and materials for the structural components of society. As an integral component of natural systems, soil plays a vital role in regulating the hydrologic system through aquifer recharge and absorption and filtration and purification of both natural-water and stormwater runoff.

The results of soil misuse manifest themselves in various ways which are costly to individuals and the public. Urban development in areas of poorly suited soils has resulted in septic tank failure, poor quality streets, cracked buildings, flood damage, and increased storm water runoff. Hydrological problems in many areas of the state have resulted from excessive alteration of the land surface, construction of large areas of impermeable surfaces, and overdrainage. Accelerated erosion and sedimentation problems usually result from the removal of trees and other vegetation, especially on easily eroded, sloping soils. The construction of masonry buildings, highways, and airports on soils with high shrink-swell clays almost always results in foundation failure and structural damage.

Recognizing the importance of soils and understanding their potentials and limitations are essential to wise land use planning, the state has published General Soils Atlases with Interpretations (5 volumes) for the entire state. These atlases, available from the Division of State Planning, are useful in broad-scale planning. In addition, detailed soil surveys have been conducted by the U. S. Soil Conservation Service in cooperation with the University of Florida Agricultural Experiment Station. These surveys have been published in fourteen counties. Detailed survey field work has been completed in three other counties and is in progress in twelve counties. Twelve million of the total 35 million acres in the state have been surveyed and mapped, leaving 23 million acres to be surveyed. Since these soil surveys provide detailed soils information necessary in operational planning and decision-making, it is of utmost importance that appropriate funding be provided in order to complete the detailed soil surveys for the entire state.

Objectives

1. Retain and use soils in a manner best suited to their capabilities.

2. *Reduce erosion and sedimentation.*

Policies

1. *Base land use decisions, in part, on consideration of the limitations, capabilities and potentials of the soil.*

Florida's population is increasing--its soils are not. It is imperative that consideration be given to limitations, capabilities and potentials of soil before irreversible land use decisions are made.

2. *Guide new urban and residential development to areas with suitable soils.*

The people of Florida are entitled to a healthful, safe place to live. In the past, urban and residential development has taken place on soils that flood, on high shrink-swell soils that cause foundations to crack and on high water table soils where septic tank failure is common. These kinds of problems are related to soil characteristics--they should be recognized and addressed by proper design techniques or development should be guided to areas with suitable soils.

3. *Encourage the use of detailed soil surveys and interpretations in land development planning to assess soil limitations and capabilities.*

Whether to establish that a development is compatible with the soil's capabilities or to estimate the costs of overcoming the soil's limitations, a detailed survey of soils is fundamental to intelligent land development planning. Crop productivity, effects on structural emplacement, drainage requirements, infiltration rates and many other factors cannot be properly assessed without a thorough knowledge of soils.

4. *Encourage the planning of major urban and residential developments in accordance with natural topographic features to avoid extreme slope and site modification.*

When the natural topography of an area is significantly changed, the effects are not restricted to the site of alteration. Extreme changes in slope result in altered drainage patterns and flow velocities which can cause erosion and sedimentation problems in otherwise distant locations in the watershed.

5. *Plan the amounts of impervious surfaces in development in conformance with the permeability, compactibility, slope and water table depth of the soil.*

When large areas of the land are covered with impervious surfaces, increased runoff can result in erosion, sedimentation, channel scouring, and other detrimental effects on adjacent lands and receiving waters. These effects can be greatly mitigated if the impervious surface area and type are designed in coordination with the permeability, compactibility, slope, and water table depth of soils in the development area.

6. Encourage the protection and agricultural use of soils considered to be "prime" and "unique" for agricultural uses.

In general, the agricultural lands must be protected and conserved if the state is to continue as a major agricultural producer. Many of the estimated 53,000 acres of agricultural land converted to urban development each year are "prime" or "unique" agricultural land. These are lands best suited for the production of food and fiber, with the least expenditure of energy. The prime lands, which can be farmed nearly continuously without degrading the environment, are the most responsive to management and require the least investment for maintaining productivity. These lands should be reserved for agricultural use to provide a good supply of fresh, high quality food that is close to the market.

7. Require on-site erosion and sedimentation control practices on land alteration projects which may result in significant erosion and sedimentation problems.

Land alteration projects of almost all kinds require some disturbance of the soil, which can result in erosion and sedimentation problems. On-site soil disturbances are an inevitable part of the alteration process. However, all reasonable efforts should be made to prevent damage to off-site areas. Although in some instances such control practices are costly, in most cases, erosion and sedimentation can be effectively controlled with relatively simple and inexpensive practices such as mulches, seeding, plastic flumes and sediment ponds.

8. Encourage "stage development," where feasible, and replanting of areas disturbed during large-scale urban and residential development to expose as small an area of soil as possible.

In recent years a wide variety of technological innovations and engineering practices have been developed to control erosion and sedimentation, but the maintenance of a good vegetative ground cover remains the most effective and inexpensive of controls. The utilization of "stage development" (clearing only those sub-units of the project which are to be immediately developed) takes advantage of this fact. In those situations where the availability of equipment and labor requires clearing of the whole tract all at once, the replanting of a fast-growing ground cover will both stabilize the soil on-site and prevent damage off-site.

9. Encourage the seasonal timing of land alteration for development to avoid erosion and run-off problems associated with heavy rains and high winds.

In much of Florida, natural precipitation patterns are characterized by rather distinct "wet" and "dry" seasons. Similarly, wind velocities can vary considerably with the seasons in some areas of the state. Since the most serious erosion and sedimentation problems associated with land alteration typically occur during periods of heavy rains and/or high winds, the timing of land clearing projects could be most beneficial in minimizing erosion and sedimentation.

10. Encourage sound landscape management practices in established residential, urban and other developments to protect ground cover and prevent erosion.

Established urban and residential areas need careful maintenance if their erosion and sediment control capabilities are to be sustained. These maintenance needs include the need to reslope and revegetate drainage ditches and swales, properly grade road shoulders to retain as much vegetation as possible, and train landscaping personnel in the proper uses of equipment and techniques to prevent the unnecessary destruction and removal of ground cover.

11. Encourage conservation practices in agriculture to minimize erosion and sedimentation.

The continuing productivity of agricultural lands is ultimately dependent on the conservation and protection of the soil. There are a wide range of techniques for slowing and, in some instances, eliminating erosion caused by wind and water. These techniques include land smoothing, terracing, contour farming, grassed waterways, conservation cropping systems, alternating row crops with close-growing crops, wind breaks and field borders.

12. Regulate off-road vehicular traffic in areas sensitive to erosion.

The careless and unregulated use of off-road vehicles in areas sensitive to erosion results in destruction of ground cover, the unwarranted proliferation of trails and, finally, erosion in the form of gullies and washouts. This problem is compounded by the fact that it is those steep-sloped areas with a high vulnerability to erosion to which off-road vehicle users are most attracted.

13. Maintain water levels as high as feasible on organic soils to reduce oxidation.

When organic soils are drained, oxidation begins to occur, resulting in soil loss. In some instances, these losses are both rapid and substantial. In parts of the Everglades Agricultural Area, for example, organic soils are subsiding at a rate of almost an inch per year. Farming of these soils requires draining, but oxidation can be retarded by keeping water levels as high as possible during cultivation and submerging the soils altogether when not in use. As an alternative to drainage, the use of crops which are compatible with a high water table should be encouraged.

14. Encourage acceleration and completion of the Soil Survey Program.

As of 1975, detailed soil surveys had been completed in 14 counties, completed but not published in 3 counties, and were underway in 12 more counties, under the auspices of the National Cooperative Soil Survey Program. These surveys are immensely useful to farmers, developers, engineers, land surveyors and other users of the land and planners who need detailed soils information. Since this is a joint state and federal undertaking, the state should encourage the acceleration and completion of the program.

15. Encourage research of those soils and soil uses where additional information is needed.

Over the years, a great deal of information has been gathered by soil scientists on the structural and functional aspects of Florida's 250 soil types. However, research is needed on some soil types. This is true of wetlands soils, in general, and the soils of tidal estuaries and salt marshes, in particular. Research is also needed in the rebuilding and general improvement of surface mine reclamation soils.

F. Agricultural Lands

Florida is a leading producer of agricultural products. Florida ranks second in the nation in realized net income per farm. Crop and livestock receipts for 1973 were $1.86 billion; in 1972 total net income per farm in the state was $21,064 and cash receipts from farm marketing were $1,680,740,000. There were 35,586 farms averaging 394.3 acres each for a total of 14,031,998 acres of farmland in the state in 1970. Currently, agriculture employs approximately 9 percent of the state labor force (160,000 persons).

Florida is the nation's number one producer of oranges and grapefruit. In 1973, the state produced 7.6 million tons of oranges and 1.9 million tons of grapefruit, both being several times greater than the amount produced in California. Florida ranks first or second in the nation in cash receipts for tomatoes, sweetcorn, celery, peppers, snap beans, cabbage, cucumbers, watermelons and eggplants, sixth for lettuce and ninth for potatoes. Vegetables retailed at $991 million in 1973.

Prime agricultural land consists of land with favorable soil, climate and topography which, if prudently managed to protect the natural qualities of the land, are favorable for the production of adapted crops. Florida's prime cropland and lands used uniquely for the production of specific products are shown in Figure 4.

Nearly half of the land in the state is in forests. The total forestland is almost equally divided between hardwood and pine, with slash pine stands being the most prevalent statewide. Forty-six percent (16.2 million acres) is considered to be commercial forestland and 87% of this land is privately owned. Over 80% of the forest resources are located in north Florida.

The forest industry supports over 140 primary wood-using plants, employing 35,500 Floridians; the 1971 payroll was $257 million. The paper and allied products industry is the most important sector of the forest-based industries. Pulpwood is by far the most valuable product. There are 2.5 million acres of high-yield or "prime" forestland in the state, capable of producing 85 cubic feet of wood per acre per year.

Forests contribute to the state's well-being in many ways in addition to wood production. They provide for resource-based recreation, wildlife habitat, erosion control, watershed protection, forage and maintenance of clean air and water.

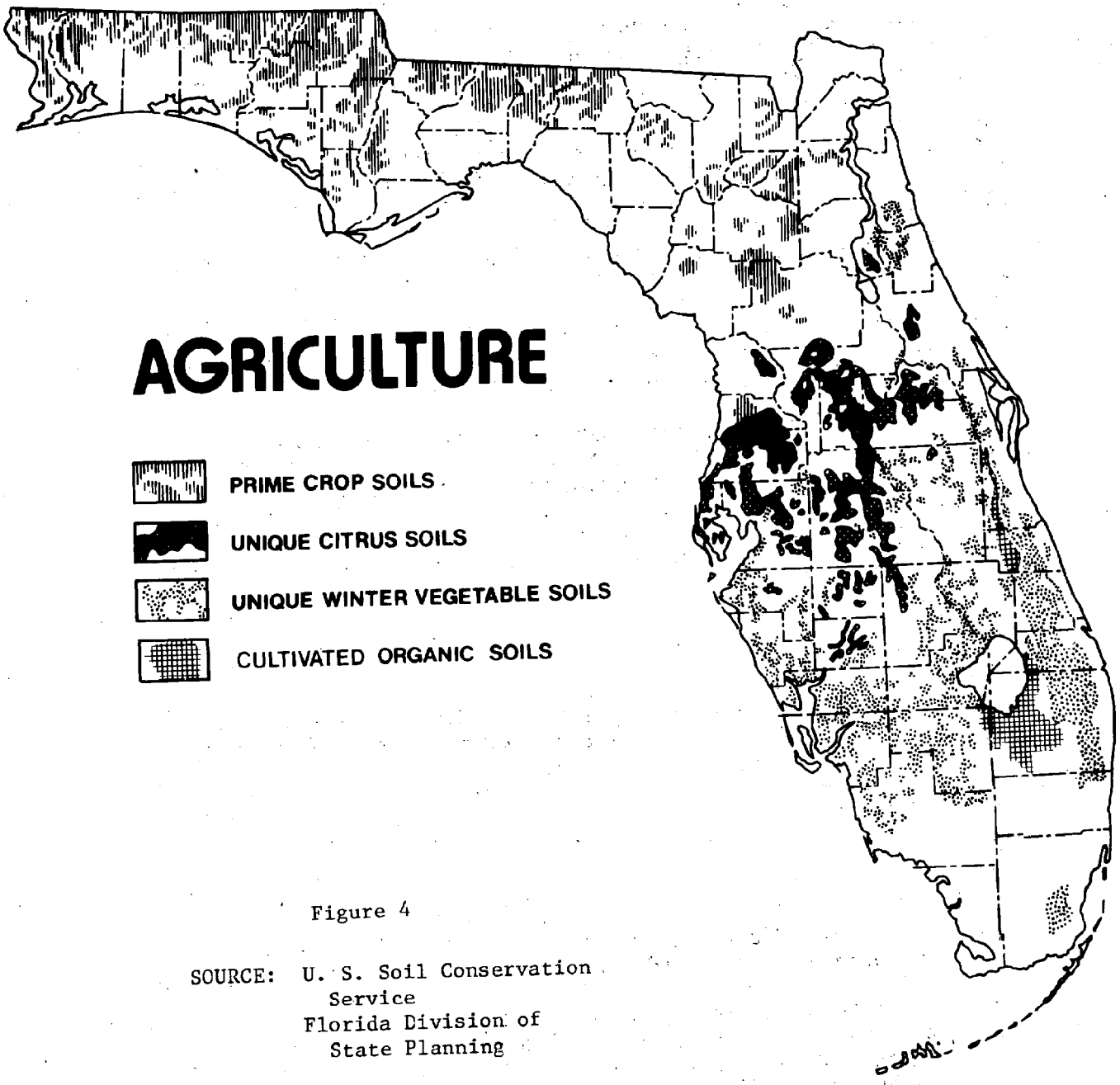


Figure 4

SOURCE: U. S. Soil Conservation Service
Florida Division of State Planning

Rapid and unguided urban growth poses a serious threat to long-term agricultural production in the state and nation. During the past few years, urban development in the nation has consumed an average of 800,000 acres of agricultural land per year. A yearly average of over 53,000 acres of agricultural land was lost to urbanization during the 1970's in Florida; over 10,000 acres of producing citrus land was converted to urban uses from 1971-73.

Historically, agricultural activities have been the source of some serious environmental problems in the state. Wetlands drainage for agricultural land development has contributed to losses of freshwater, destruction of wetlands and degradation of many freshwater bodies. Agricultural practices continue to degrade the quality of the state's surface water through the discharge of nutrients, pesticides and other pollutants. Imprudent forest management practices can, likewise, be detrimental to the environment; i.e., massive land-clearing, particularly along highways and streams.

Another problem which faces agriculture today and will increase in the future is its heavy reliance upon fossil fuels to produce and operate machinery and to produce fertilizer. It is almost univerally accepted that supplies of fossil fuels will continue to decline. It is, therefore, imperative that agriculture seek alternatives to the heavy dependence upon this diminishing resource.

Agriculture is basic and essential to the state and nation. If the state is to continue as a major provider of food and fiber products, the agricultural lands must be protected and conserved. However, in recognition of the competing demands for land in the state and the future necessity to convert some agricultural lands to other uses, higher retention priority and effort should be given to those lands considered to be "prime" and "unique" agricultural lands.

Objectives

1. Maintain and preserve agricultural lands for production of food and fiber products, particularly those most seriously threatened.

2. Balance agricultural land use practices with other land resource objectives.

Policies

1. Encourage the retention of agricultural lands for agricultural use, particularly those considered to be "prime" and "unique."

Lands best suited for agricultural use are often those best suited for urban development. Agricultural interests in rapidly developing areas cannot compete with urban developers for land. During the 1970's, an annual average of 53,000 acres of agricultural land was lost to urban development. In a two-year period--1971-1973--10,517 acres of producing citrus land were lost to urbanization.

2. Coordinate land development in prime forestlands to retain as much forestland as possible.

Highly productive forestland is capable of producing 85 cubic feet of wood per acre annually in addition to its other values for recreation, wildlife habitat, open space, watershed protection, erosion control and maintenance of air and water quality. Prime forestlands in the state are declining in acreage.

3. Encourage the use of detailed soil surveys and consultation with appropriate government agencies to determine the agricultural productivity of a given tract of land.

Soils information is essential for properly planning for crop production. The information contained in the surveys is not easily understood by all who need it. The workshops which are held upon completion of surveys should be promoted and appropriate governmental agencies, particularly the U.S. Soil Conservation Service and the Agricultural Extension Centers, should be consulted for technical assistance.

4. Plan and coordinate development near agricultural areas to avoid adverse impacts on resources essential to agricultural production.

In some areas of the state, water used for agricultural irrigation is being depleted by other uses. High volume water-use mining operations and processing plants have lowered the water table drastically in the south-central part of the state. Large-scale drainage for urban development has lowered the water table beneath adjoining farmland in south Florida causing a need for additional irrigation of crops. High fluorine-content dust from phosphate processing plants in the south-central part of the state has allegedly caused damage to farm animals and vegetation.

5. Promote agricultural management practices which minimize reliance on fossil fuels.

There are a number of agricultural management practices presently available, as well as others under study, which minimize reliance on fossil fuels and can result in a savings in fuel use. For example, nighttime sprinkler irrigation and trickle tube irrigation reduce both water and fuel use. The use of natural systems to purify, transport and dispose of stormwater runoff or wastewater is an energy saving alternative to structural systems.

6. Encourage the multiple use of agricultural and forestlands when such uses are compatible with production.

Forestland and most agricultural land can be used for recreational purposes without hindrance to the primary use and, sometimes, to the economical advantage of the owner. Most paper companies allow limited free use of their lands for hunting and fishing; some companies charge fees for such activities. Cropland can also be used for hunting. Forest and agricultural land can also be managed for camping and fishing.

7. Encourage agricultural and silvicultural (forestry) diversity and avoid monoculture to the extent feasible.

Diversity in agriculture and forestry reduces the likelihood of production being completely lost due to a single adverse factor. As examples, wide-scale and intensive production of a crop (particularly a crop also grown in other states during the same season of the year) may increase the supply to the extent that the demand drops, making it uneconomical to harvest. Wide-scale growth of a single species of crop or tree may subject the crop and the market to wide-scale destruction by insects or disease.(Examples of this occurred in the midwest corn belt due to a corn blight and in the pine forests of the southeast due to the pine bark beetle.)

8. Encourage forest management programs which promote mixed use and aesthetics and favor clear-cutting on a small-tract basis only.

The methods and techniques by which forests are managed significantly influence their values for other purposes. Clear-cutting of large tracts (up to 500 or more acres) greatly reduces the land's potential to support wildlife for long periods of time, whereas clear-cutting of small (50 to 100 acre) tracts separated by uncut areas or leaving uncut plots within a clear-cut area are much less destructive. Innovative timber management practices can create a more appealing landscape. For example, the shaping of clear-cut area into ameboid patterns with undulating edges and age staging of timber are aesthetically more attractive than large, rectangular areas of barren land or even-aged trees. Clear-cutting along rivers, streams and lakes is unattractive to boaters and can create water erosion and sedimentation problems.

9. Encourage reuse of irrigation water and animal and other agricultural wastes in agricultural management in order to decrease the reliance on chemical fertilizers and minimize adverse environmental effects.

The various wastes generated in the normal course of agriculture (irrigation "tail water," animal manures, etc.) can be viewed as pollutants or resources, depending on their use: the high concentrations of nitrogen and phosphorus, or nutrients, in agricultural run-off water which result in over-enrichment, or "eutrophication," of the state's surface waters, represent misplaced fertilizer resources which can and should be recycled on the farmland from which they came. In the past, such recycling efforts could not be justified on economic grounds, but in the face of increasing fossil fuel-based, chemical fertilizer costs, these efforts may become both economically and environmentally sound.

10. Minimize air and water pollution from current agricultural and forestry management practices by encouraging alternative management practices or by requiring pollution abatement measures.

Many current agricultural and forest management practices contribute to air and water pollution. Uncontrolled burning in the spring has long been a practice on some rangeland to stimulate new growth of native grasses. However, timely controlled burning can be an effective range management tool. Over-drainage and over-fertilization of improved pastures increase the volume of nutrient-laden storm waters flowing into lakes and streams. In some cases, these waters could be retained on land or routed to marsh or swamp areas for purification and safe return to the hydrologic system.

11. Encourage research in agricultural practices which are adapted to Florida's natural hydrologic cycle and minimize reliance on drainage and irrigation.

In the past, agricultural interests in Florida have dealt with the strong seasonality of the state's natural hydrologic cycle by drainage in the wet season and irrigation in the dry season. Such practices are, in effect, attempts to alter a powerful natural hydrologic cycle and are, therefore, expensive, energy intensive and environmentally disruptive. An alternative approach is to accept and adapt to this cycle. Rather than draining perennially wet areas, efforts should be made to adapt animals and crops to these areas. In this regard, the Institute of Food and Agricultural Sciences (IFAS) is presently conducting research into growing rice in wet areas in the state and into the use of water buffalo (or hybridization with other stocks) which are water tolerant. Another example is the Soil Conservation Service's emphasis on the Utilization of native range which is adapted to wet and dry cycles rather than in combination with improved pasture with its attendant high development and maintenance costs.

G. Minerals

The diversity and abundance of Florida's more obvious surface resources tend to obscure the importance of the state's subsurface resources. Florida is a "mining state" in the fullest sense of the term and the minerals extracted play a significant role in maintaining the quality of life in the state and in the nation.

The list of mineral resources produced in Florida is extensive: heavy minerals (including monazite, zircon, titanium minerals, garnet, kyanite, and staurolite), peat, petroleum and natural gas, phosphate rock, portland cement, various clays (kaolin, bentinite, fuller's earth), diatomite, lime, fluorine, uranium oxide, gypsum, lightweight aggregates, limestone, sand, and gravel. In 1974, the value of minerals produced in the state was $985 million. In that same year, Florida ranked first in the production of phosphate rock, first, in terms of value, in the production of fuller's earth, second in the production of titanium concen-

trates and third in peat and kyanite production. In 1973, Florida ranked 17th in the nation in total mineral production value, ahead of all other southeastern states. The phosphate industry is of particular importance; Florida is one of the largest phosphate rock-producing regions in the world, accounting for 75 % of U. S. production and one-third of the entire world production. Most importantly, Florida supplies approximately 95% of the U. S. agricultural demand for phosphatic fertilizer.

Clearly, Florida has many important mineral resources. However, both in terms of expanding consumption and increasing conflicts with other land uses, demands on these resources are bringing into question their long-range productivity and availability . Mineral resources differ significantly from virtually all other natural resources in that they are finite. This fact alone requires that the state encourage the conservation and wise management of minerals wherever possible. Moreover, the state must begin to take a more positive role in coordinating the multiple demands being placed on lands containing significant mineral resources, to assure the option of their extraction and use. While many questions remain concerning land use and development in the future, there is little doubt that the state and society as a whole will need Florida's mineral resources in the years to come.

Figure 5 is a map showing the more important minerals in the state.

Objectives

1. Achieve efficiency in the use of all mineral resources.

2. Develop reasonable options which will allow the future use of mineral resources.

3. Reclaim all mineral sites so as to enable their productive use after the resource is depleted.

Policies

1. Coordinate mining plans, operations and reclamation with land planning at all levels of government.

The extraction of minerals from the earth's surface is typically one of society's major undertakings in the securing of needed raw materials. All phases of the mining process--exploration, land acquisition, the mining operation itself, and reclamation--require huge expenditures of dollars and energy. Just as important is the careful coordination with other land development to minimize economic and environmental disruption and to assure the successful recovery of mineral resources. To this end, all levels of government must be actively involved in the coordination of mining with land planning.

MINERALS

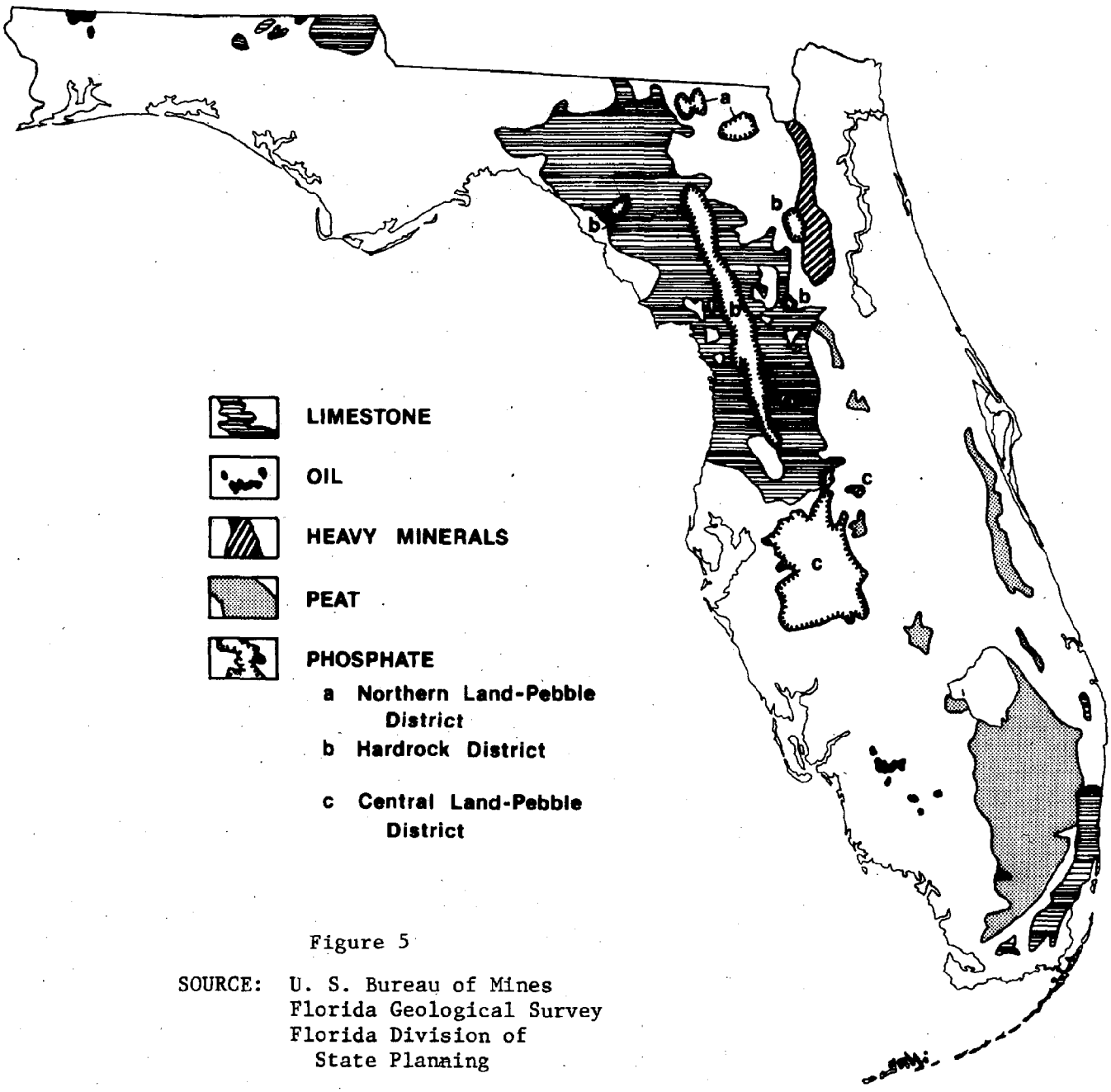


Figure 5

SOURCE: U. S. Bureau of Mines
Florida Geological Survey
Florida Division of
State Planning

2. Encourage the conservation and efficient use of nonrenewable mineral resources.

Unlike virtually all other natural resources, mineral deposits are finite and are being rapidly depleted. It is imperative that the state encourage those mining and refining processes which both conserve mineral resources and utilize those extracted to the fullest extent.

3. Encourage research and development in extraction technology.

Given favorable markets, the quantity of minerals mined from a given site is often limited by the contemporary mining technology rather than the size of the total deposit. Technological advances, such as reservoir pressurization and the application of tertiary recovery techniques in the oil industry, and the development of double-floatation processes in phosphate ore recovery, have resulted in several-fold increases in production over older methods. Research and development of dry-rock processing could reduce the impact of mining and water resources.

4. Encourage reprocessing or "scavenger" operations.

If the demand for a given mineral resource remains high, many "mined-out" sites as well as waste areas of former mines, can be profitably re-mined. So-called "soft-rock" phosphate mining in the old hard-rock phosphate districts, and phosphate "debris" mining are examples of re-mining which is presently underway.

5. Encourage the utilization of by-products generated during the mining and refining of the principal ore.

Most mineral extraction and refinement operations generate a number of by-products of varying economic worth. Some of these, such as the heavy-mineral silicates recovered in titanium oxide production and fluorine and uranium recovered in the production of phosphoric acid, are being marketed. Others, such as by-product gypsum arising from phosphate processing, await the development of techniques to convert them to useful materials, at a competitive price.

6. Encourage research of the state's lesser-known minerals.

A considerable body of information has been developed regarding the utilization of the state's known valuable mineral resources, such as phosphate ore and oil. The properties and potential uses of the Florida clays are known; however, due to lack of knowledge as to the extent and quantity of these resources, their economic worth is unknown.

7. Encourage geological exploration of the state and the compilation of all existing minerals data into a "minerals atlas."

The high production mineral deposits in Florida, such as the heavy mineral deposits in the Trail Ridge area or the Central Florida land-pebble phosphate district, have been prospected and mapped in

considerable detail. However, in many cases, the location and extent of secondary deposits of various minerals are not well known. Moreover, the existing, statewide minerals data are presently not available in a comprehensive and usable form. The compilation of a "minerals atlas" would be an important document in the land planning effort.

8. Encourage the protection of future mineral extraction sites through sequential land use and time-phased land use regulation.

Mineral deposits underlying certain types of structurally and energy intensive land use are, in most cases, lost deposits. Valuable phosphate rock deposits underlie many of the roads and urban areas in the Central Florida land-pebble phosphate district; large portions of the Miami Oölite limestone--the only significant construction material in southeast Florida--are unavailable due to rapid urban expansion.

The extraction of minerals, in many instances, has been hampered or prevented altogether by zoning and other land use restrictions. Sequential land use or "sequential zoning" would keep potential mine sites in a low-energy land use until mining was feasible and would allow extraction to occur before the land is committed to further structurally intensive areas.

The extraction of proven reserves should be postponed as long as practicable where necessary to preserve rare and unique natural areas and surface resources.

9. Require mandatory reclamation of mining sites.

Present statutory requirements concerning mandatory reclamation exempt many mining operations. These exemptions should be excluded so that the costs of reclamation are shared by all operators. Reclamation plans and the uses of this land should be based on local, regional and state participation and their subsequent needs determination. There are many possible options available for the use of mined-out land, such as commercial and industrial uses, carefully designed residential development, wetlands and recreational uses.

Various state activities, particularly road construction, require the purchasing of substantial quantities of minerals. The state should require that operators supplying these minerals practice extraction and land reclamation techniques which are sound from both a conservation and an environmental point of view.

10. Encourage innovations in land reclamation technology.

Land reclamation has taken great strides in recent years in the quantity and the usability of reclaimed lands, lessening of associated deleterious environmental effects, and expeditious reclamation. Most of these innovations have come from private industry. The state should strongly encourage these efforts and lend technical support wherever possible.

11. Identify and evaluate all hazards associated with reclaimed lands.

Recent concerns over potential radiation hazards on reclaimed phosphate lands emphasize the need to identify and evaluate possible hazards associated with reclaimed lands. Such an evaluation process is not only necessary for reasons of safety, but feedback from it may be important in instituting changes in reclamation techniques to eliminate those hazards.

12. Carefully plan and coordinate mining and processing activities with available water supplies to insure protection and the most beneficial uses of water resources.

Many mining activities, particularly phosphate mining and processing, are prodigious users of water, and without careful planning can lead to water supply problems. Intensive mining activity in Polk County, for example, in combination with other heavy uses such as citrus irrigation and processing, has resulted in serious aquifer drawdown. It is, therefore, critical that the location and timing of new mine openings, the rate of water use in existing operations and other such factors be carefully coordinated with Water Management Districts to assure adequate supplies for other beneficial purposes.

H. Amenities

The term "amenity" connotes pleasure or agreeableness. As used here, amenity relates to certain physical resources or characteristics of the land which deserve special attention due to recreational, ecological and scientific values or their ability to impart a sense of pleasure to the beholder. Resources specifically referred to are rare and unique natural areas and fish and wildlife. Natural amenities also include broader and less definitive components; i.e., scenic beauty, open space and scenic vistas.

With a few exceptions, it is difficult or impossible to place direct economic or social value on natural amenities. Economic values can be applied to some extent to certain fish and wildlife species and recreation uses of some areas can be measured. However, the measurable values of these resources would fall far below the unquantifiable benefits they provide the state. The desirability of the state as a place to live and visit is due largely to its climate, natural beauty and variety.

The problems with natural amenities are inherent in the difficulty to quantify their values, identify and locate them. It is widely accepted that the coastal areas, lakes, and rivers are of utmost importance; consequently protective mechanisms exist for these resources. Yet, it is not common knowledge that one of the two last large stands of virgin cypress swamp in the Southeastern United States lies

in Central Florida. Whereas game fish and wildlife, which are a revenue source, are provided for through management and regulation, songbirds, small mammals and other animals of aesthetic and ecological value generally get little or no consideration in planning for development of an area. Potential open spaces, green belts and scenic vistas, which enhance the natural beauty, recreational opportunities and environmental quality of the state, are often not utilized due to lack of understanding of their values.

Rare and unique natural areas are those which are culturally, environmentally or scientifically important due to their scarcity, with only one or a few of a kind being located in the state or a region. These generally undisturbed areas are distributed throughout the state and may be wetlands or uplands. Some examples of types of rare and unique natural areas are: (1) unaltered rivers; (2) first magnitude springs; (3) unusual geological formations; (4) rare and unique floral and faunal occurrences; and (5) signficant remnants of indigenous ecosystems. Due to the distribution and rarity of types of rare and unique natural areas, many are totally unprotected and receive no more concern than any other unregulated tract of land.

The policies which follow are intended to direct attention to these resources and provide a basis for their use and protection.

Objective

Maintain, enhance and, where possible, restore Florida's natural amenities and historical and archaeological resources.

Policies

1. Encourage the protection and maintenance of publicly and privately owned areas with rare and unique natural features.

Rare and unique natural features, such as springs, caves and significant biological communities, provide important aesthetic and recreational opportunities. Silver Springs, Everglades National Park and the state's beaches are examples of natural features visited by thousands of people per month.

2. Preserve in their natural state the most representative units of each type of ecological system in sufficient amounts and locations so as to be self-sustaining and available for public benefit.

The Florida Environmentally Endangered Lands Plan notes 15 separate and distinct ecological systems in the state. Representative portions of these ecosystems need to be preserved to: (a) allow present and future generations to enjoy; (b) maintain diversity of the state ecosystem; (c) preserve the genetic stock of the state for possible future utilization; and (d) conduct scientific study. Being similar, and sometimes identical, to the rare and unique natural areas described in Policy 1, these areas are also important to the state's economic well-being.

3. Encourage the regulation of development on lands adjacent to publicly owned lands which have significant amenity values.

In some areas of the state, the public beaches are virtually inaccessible. Heavy commercial development around state park perimeters detract from the appearance of these facilities.

4. Insure the long-term maintenance of habitat of rare and endangered species of plants and animals.

The Florida Committee on Rare and Endangered Plants and Animals lists 102 rare and endangered species in the state. These species have significant aesthetic and scientific values, and need to be preserved for the same reasons as given in policy 2 above.

5. Encourage land and water management practices which will protect and enhance fish and wildlife resources.

Fish and wildlife constitute an integral part of outdoor recreational experiences, and result in state revenue sources directly through the sale of fishing and hunting licenses and, indirectly, as a base for commercial and sport fishing industry. Further, they make a significant but unquantifiable contribution to the aesthetic beauty and ecology of the state.

Retention of land in as near a natural state as possible and retention of maximum vegetation are supportive of wildlife. Establishment of wildlife management areas and innovative forestry practices, likewise, enhances wildlife. Proper water level manipulation of water bodies and protection of wetlands and submerged lands enhances fish and other aquatic life.

6. Protect fish and wildlife habitat against the adverse effects of heavy, motorized vehicle and boat traffic.

Overuse by motorized vehicles can seriously scar the land and create erosion problems. Heavy boat traffic can cause water quality problems and bank erosion and can encourage the spread of noxious aquatic weeds.

7. Encourage the use of "green belts" and open space in planning for urban development and redevelopment.

"Green belts" and open space serve as recreational areas and buffer zones. Further, they enhance the aesthetic appeal of the area for development and reserve fish and wildlife habitat.

8. Design and locate development to enhance and utilize natural scenic vistas.

Development can often, through design or location, take advantage of a natural phenomenon to create or utilize a scenic vista (highways represent one example). Scenic vistas are important to the aesthetic quality of the state.

9. Discourage land development activities and location of structures which unnecessarily detract from the scenic beauty of the state.

Unreclaimed mined land and land prematurely cleared for speculative purposes are unattractive and can be avoided by proper land use planning. Random and unregulated billboards along the state's highways unnecessarily detract from the beauty of the countryside of the state.

10. Protect and restore the historic and archaeological resources of the state.

Within the past few decades, many known historic or archaeological sites were destroyed by public or private land development activity. In the face of ever-increasing pressures of development, programs to protect and restore the state's historic and archaeological sites should be expanded and accelerated in order to preserve properties significant in Florida's history. However, properly planned development in areas contiguous to those sites would pose no significant threat and could enhance the quality of the development.

I. Beaches and Dunes

Florida is bordered on the west, south and east by the Gulf of Mexico, Atlantic Ocean and their associated estuaries. The narrow strip of land which follows the waterline or shoreline of the state and is washed by the tide and waves constitutes the beaches. The state has approximately 8,424 miles of tidally-affected shoreline of which approximately 1,000 miles are known as "sandy" beaches; the remaining shoreline is known as "estuarine" or "vegetated" beaches. The sandy, high-energy beaches occur along the Gulf and Atalntic Ocean proper and the estuarine (low energy) beaches occur along the numerous bays, bayous and lagoons. The sandy beaches are usually adjoined by dunes which lie landward; the estuarine beaches are usually accompanied by marshes or mangroves growing in and near the water, or land vegetation growing near the water.

A substantial portion of the Atlantic and Gulf Coasts of the state are bordered by offshore barrier islands. The islands are very important in providing protection to the mainland coastal areas of the state from storms and their effects. Due to the strong forces of nature, these islands, unlike the mainland, are in a constant state of change. Additionally, the barrier islands, in their natural state, represent a rare and important type of Florida ecological system.

The sandy beaches and dunes represent a dynamic system of sand accretion and depletion resulting from the interaction of the wind, waves and currents. The dune system, which usually becomes somewhat stabilized by vegetation, generally consists of one or more foredunes, or "primary" dunes," and several smaller back dunes, or "secondary dunes."

Due to their physical characteristics, both sandy beaches and estuarine beaches offer protection to inland areas against wind and waves. Dunes provide an actual physical barrier against wind, waves and high tides associated with storms. Mangroves and other trees along estuarine beaches serve as wind and wave breakers, while marshes act as sponges in absorbing water during extremely high tides.

The coastal vegetation along estuarine beaches is an integral and important component of the estuarine system. Biologically, the inshore coastal waters are among the state's most productive and valuable resources, supporting numerous varieties of commercial and sport fish, shellfish and wildlife.

Protection of life, property, soil and other resources is only a portion of the benefits provided by beaches and dunes. It is well recognized that these areas are among the state's most important recreational resources. With climate being a possible exception, the beaches are the best known and among the most attractive features the state has to offer residents and visitors.

Public and private development along the coastline has been responsible for destruction and deterioration of a considerable amount of the natural value and beauty of the state's beaches, dunes, shores and related resources. Private development along both coasts has, in many areas, particularly the southeast, obliterated the dunes and marshes, mangroves and other vegetation, and developments have literally been constructed in the ocean. In addition to urban development along the coast (i.e., housing, business, etc. and associated canals, bulkheads, jetties, etc.), human wastes, dredging of navigational channels, and petroleum and chemical discharges have further contributed to the degradation of the beaches and shores.

Most land lying seaward of the mean high water line is public property; the Coastal Mapping Act of 1974 (Chapter 177, Part II, Florida Statutes) provides a scientific means of locating the mean high water line with precision. However, in many areas of the state there is inadequate access to beaches due to private ownership of the adjoining upland. More than two-thirds (707 miles) of the upland adjacent to sandy beaches of the state are in private ownership.

Additionally, many of the sandy beaches of the state are being lost through natural erosion. Many beaches along the Atlantic and Gulf Coasts are seriously eroding. Beach erosion represents one of the most perplexing problems facing the state. Whereas it is the state's obligation to protect this valuable resource, coastal structural resources and private property, it is unrealistic to assume that the state can, over the long-term, continue to combat the powerful natural forces that continue to restructure the land. Nevertheless, until the state can find better methods of erosion control or better ways to influence redistribution of the population, it has no alternative but to continue stop-gap beach nourishment programs at a cost of approximately $1 million per mile and $100,000 per mile annually for maintenance (present estimated cost).

The policies which follow are intended to assist in protecting the state's beaches and dunes and, at the same time, allow their reasonable use.

Objectives

1. To maintain and protect the state's beaches and dunes.

2. To maintain and use the state's beaches and dunes primarily for recreation-oriented activities.

Policies

1. Encourage the use of beaches for recreation-oriented activities which do not alter or disturb these resources.

Proper uses of beaches include fishing, swimming, sun-bathing, boating and sightseeing. Improper uses include motorized vehicle racing and driving, carnivals and other uses which involve heavy concentrations of people, machines and structures.

2. Discourage urban, residential or other development along sandy beaches and dunes which would threaten the integrity of the primary dunes and beaches.

Dunes and beaches constitute a dynamic and fragile system. Land clearing, scraping and leveling, seawall and building construction through the removal of vegetation and interference with the constant and normal movement of water and sand, seriously disrupt the natural functions of the beach and dune system, as well as its recreation uses.

3. Protect estuarine beaches against incompatible uses and closely regulate development of state significance, which, by its general purpose, requires location on or near beaches and shores.

Harbors and port facilities, water-based industry, electrical power plants, and oil and gas transfer and support facilities, determined to be in the state's best interest, must often necessarily be located on beaches. The adverse impact of these activities can be greatly mitigated through careful regulation.

4. Encourage upland development along the beaches and dunes only for purposes which will not alter or disturb these resources.

Sparsely scattered homes, if properly designed and located, represent little threat to the integrity of the dunes and beach. However, any such development must comply with the provisions of the Beaches and Shores Protection Act (Chapter 161, F.S.), the National Flood Insurance Program, State Pollution Control Standards, and the Coastal Zone Management Program.

5. Encourage the protection and maintenance of the natural functions and values of the barrier islands of the state.

These islands naturally are in a state of dynamic equilibrium and are more sensitive to development than upland areas on the mainland. Consequently, in order to protect these and the associated estuarine resources, development on the barrier islands should be carefully managed and planned in a manner consistent with the characteristics, values and functions of the islands.

6. Provide adequate access to public beaches and in a manner which will not alter or disturb the primary dunes or beaches.

Although lands lying seaward of the mean high tide line are public property, large portions of the state's beaches are inaccessible because adjoining upland is in private ownership. Inadequate beach access is a particularly serious problem in southeast Florida.

7. Support dune stabilization and beach protection and restoration projects in areas where significant erosion and damage have occurred and control of development in and around such areas to protect the public investment.

Some of the beaches of the Atlantic Coast and the northwest Florida Gulf Coast are being lost through natural and man-induced erosion. Unless these beaches are protected and restored, erosion will result in the loss of the beaches as well as public and private property. However, development in and around restored areas must be carefully controlled to protect the investment in the area and prevent the recurrence of similar problems.

J. Natural Hazard Areas

The same factors which make Florida a lush subtropical paradise also contribute to some of the state's most significant natural problems. Florida has over 10,500 miles of rivers and streams and approximately 7,700 lakes of 10 or more acres, as well as approximately 8,424 miles of tidally-affected shoreline. These and surrounding areas are naturally prone to flood during storms and heavy rains. Portions of 65 of the 67 counties have been officially identified as having special flood hazard areas.

As of September 30, 1975 Florida was first in the number of flood insurance policies sold, with 123,051 policies providing insurance coverage of $3,871,549. As of December 31, 1974, 1,738 flood insurance damage claims in Florida paid $2,354,273.

Flooding is a natural phenomenon which cannot be reasonably controlled in many areas. Control of flooding requires construction and continuous maintenance of exceedingly high cost structures. Flood control

projects in portions of the state, particularly in the southeast, have become inadequate due to overdevelopment in the area served, resulting in further flood damages and the need for additional protection.

The most logical and cost effective means of avoiding wind, wave and water damage is through proper location and design of development. One solution would be to locate structures in areas which are not flood prone. However, this cannot always be done and the only reasonable alternative is to protect life and property through proper structural design. An additional important flood-protection measure is to maintain resources which provide natural protection such as beaches, shores and dunes and natural vegetation in flood and storm hazard areas.

Some areas of the state have geological and soil characteristics which present significant hazards to certain structural development. Sinkholes are known to occur in areas underlaid by fractured, cavernous or solution limestone. The western, central and Big Bend portions of the state are sinkhole areas. In order to prevent the loss of life and property, development in such areas should be based upon careful analysis of the potential for sinkhole formation.

Various portions of the state (for example, Leon, Gadsden, and Jefferson County areas) contain significant deposits of high shrink-swell clays. Traditional structural foundations laid on these clays commonly shift and crack, often causing extensive damage. Thorough soil-testing should be conducted in areas known to contain high shrink-swell clays and structures should be specially designed and constructed to prevent damage.

Objective

1. Maintain and protect the health, safety and well-being of people by permitting development and redevelopment of hazard areas only for compatible uses and structures.

Policies

1. Regulate the use of flood-prone areas for purposes compatible with the hydrological characteristics of the areas.

Hardwood forestry, recreation and water storage are beneficial uses of freshwater flood plains.

Coastal urban and residential development on or seaward of the primary dunes constitutes a risk of life and property. This was recently (September, 1975) demonstrated in Bay, Walton and Okaloosa Counties when Hurricane Eloise inflicted massive property damage on the area. However, urban and residential development can be compatible in some flood-prone areas if properly located, designed and constructed.

2. *Require new residential development and redevelopment in the 100-year floodplain to be designed and constructed such that ground floor elevations are at or above the 100-year flood elevation.*

In order to qualify for insurance under the National Flood Insurance Program (which is a prerequisite for all federally insured or approved funding in identified flood areas), all future residential developments must be constructed with ground floor elevations at or above the 100-year flood level.

3. *Require flood proofing for non-residential and public facility development in 100-year floodplain areas.*

This is, likewise, a requirement of the National Flood Insurance Program.

4. *Protect floodways in riverine floodplains from development which would impair their normal capability to discharge water from the 100-year flood.*

It is a requirement of the National Flood Insurance Program that development or alterations of floodways not increase the flood level by more than one foot.

5. *Require that development below the level of the 100-year flood in coastal hazard areas be located above the mean high tide line, adequately elevated and anchored, and designed to minimize the impact of abnormally high tides or wind-driven water.*

This is also a requirement of the National Flood Insurance Program. Filling to meet this requirement is prohibited in these areas (in accordance with proposed criteria for the program).

6. *Seek provision of adequate transportation facilities to enable prompt evacuation of people from hurricane-prone and other natural hazard areas.*

Government has an obligation to insure the protection of the health, safety, and well-being of the people. Adequate escape facilities are essential in order to assure the safety of residents living in hurricane-, flood- and other disaster-prone areas.

7. *Discourage large expenditures of public funds for flood control to enable increased urban and residential development in flood hazard areas.*

Federal flood control projects represent an excellent example of public expenditures which in some instances encourage development in flood-prone areas. Invariably, in Florida, the development which has followed flood control projects has created a demand for further flood control and more public spending for protection.

8. Encourage floodplain regulation and management, relocation of people and other nonstructural solutions as alternatives to structural flood control facilities.

It is safer and more economical in the long run to avoid urban development in high risk flood areas, such as river floodplains and wetlands. Where settlement of high-flood-hazard areas has already occurred, it is safer and often more economical to direct flood-prevention efforts at relocating the people rather than controlling the flood level. Disaster rehabilitation efforts should consider relocation of people and structures as an alternative to rebuilding in hazard areas.

9. Encourage the utilization, preservation, and restoration of natural resources so as to provide protection from wind, wave and water damage.

Barrier islands, coastal dunes, wetlands and beaches provide natural protection for coastal and inland areas against high winds and waves from the sea. Trees and other vegetation serve as wind breakers and slow the flow of destructive flood waters.

10. Insure that land developers and prospective buyers in areas with significant geologic and soil hazards are made aware of potential dangers to life or property.

Sites known to be underlaid by high shrink-swell clays or by fractured, cavernous or solution limestone constitute a serious hazard to the establishment of buildings, highways and other structures.

11. Require investigations in areas known or suspected to have soil or geologic hazards, prior to making decisions regarding construction of large-scale developments and public facilities.

It is the state's obligation to protect its investments in an area by insuring, through scientific investigation, that the area is suitable for development.

12. Encourage the establishment and maintenance of effective warning systems, evacuation routes and fire control capabilities in natural fire hazard areas.

Sand pine forests are extremely susceptible to wild fires. In order to prevent the loss of life and property of the residents of these and any other fire hazard areas in the event of a major fire, steps need to be taken to provide such areas with warning systems, evacuation routes and fire control capabilities.

III. TRANSPORTATION AND ELECTRICAL POWER FACILITIES POLICIES

Public facilities have been considered as a category of land development in the overall land development policies. These facilities have also been considered in the land resource categories, where appropriate. Nevertheless, transportation and electric power facilities cannot be given the desired level of attention in other sections of the plan. For this reason, these two public facilities are given additional treatment.

Overall policies contained in the previous section of the plan apply, as appropriate, to transportation and electric power facilities, as well as other public facilities. Figure 6 shows major transportation routes and power facilities and their relationship to other major public investments.

A. Transportation Facilities

Policies

1. Utilize transportation facilities to achieve orderly growth and development in the state.

Transportation access is essential to the development of any area. The provision of transportation is, in many cases, an effective means of stimulating growth and development of an area.

2. Support and encourage efforts to develop effective mass transportation systems, non-motorized transportation and other alternatives to the automobile in order to conserve energy and other resources.

The primary mode of transportation in the state and nation, the automobile, is a major consumer of our limited energy and natural resources. It is also a primary source of air, water and noise pollution. More efficient and less polluting means of transportation must be sought and utilized.

3. Encourage the regulation of land development in the vicinity of major thoroughfares so as to avoid safety hazards, to insure the long-term adequacy of the transportation facilities and to achieve orderly growth and development patterns.

Uncontrolled strip commercial development along major highway thoroughfares and around intersections creates safety hazards for motorists through increased starts and stops, and through entering and departing businesses. These same factors diminish the utility of the highway and increase fuel consumption. In the event that it becomes necessary to construct additional traffic lanes, the location of numerous businesses along a highway precludes the possibility of widening the existing

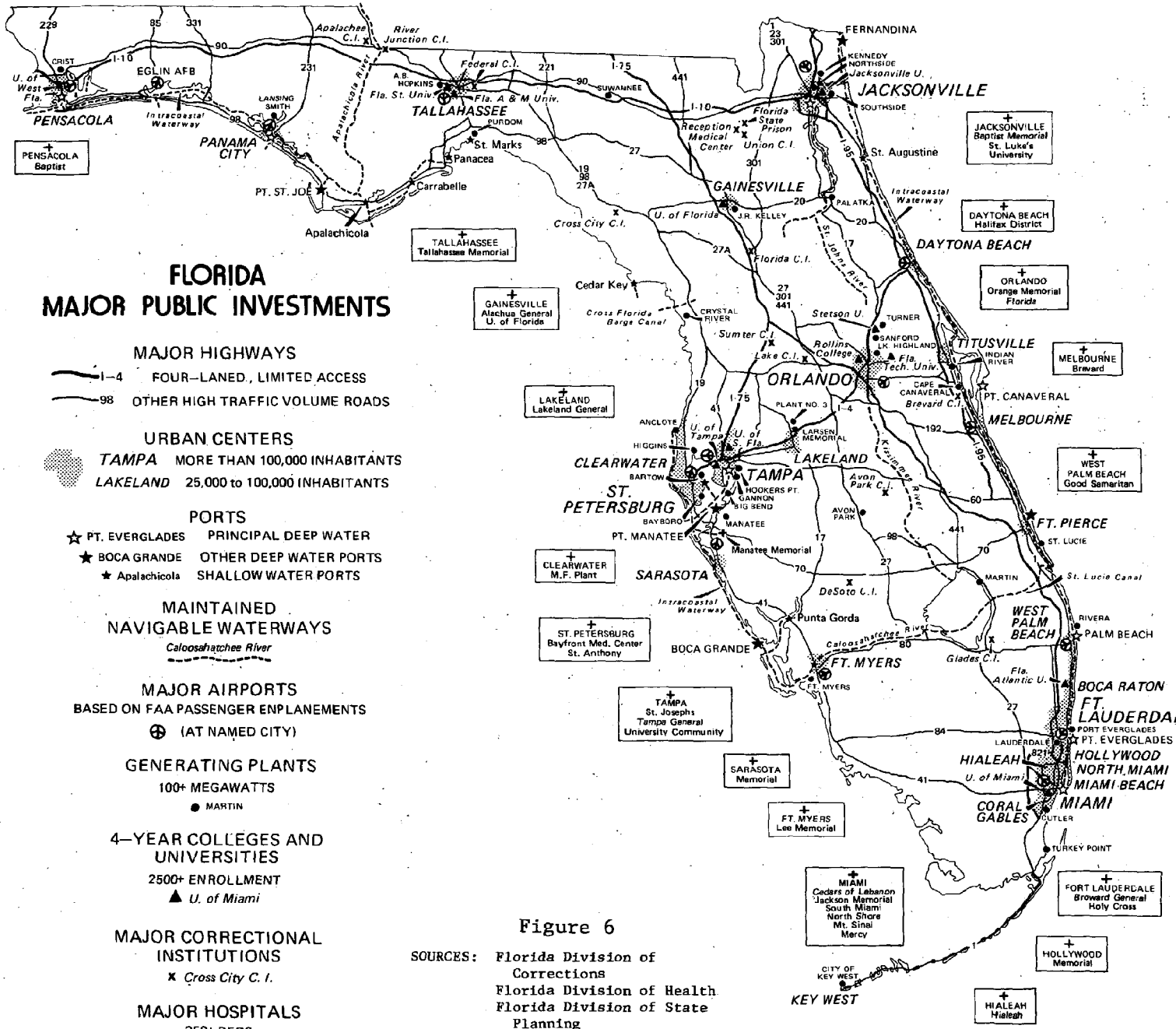


Figure 6

SOURCES: Florida Division of Corrections
Florida Division of Health
Florida Division of State Planning
Florida Power and Light Co.
The New Florida Atlas

facility due to the relocation costs and disruption, thus necessitating the construction of by-passes which may, in turn, detract from the businesses.

4. Locate and utilize transportation facilities to insulate areas of state, regional or local concern from incompatible land uses.

Highways serve as barriers wherever they are located. The location of an interstate highway along but ouside the border of, certain rare or unique natural areas, archaeological sites, or other areas of concern would tend to buffer that portion of the area from urban encroachment, as well as possibly create attractive scenery for motorists.

5. Strengthen the regulation of billboards and signs along major highway thoroughfares to insure the maintenance of an aesthetically appealing countryside.

Dilapidated or unattractive billboards and signs, randomly located along the major highways, are distracting to motorists and unnecessarily decrease the aesthetic appeal of the state's highways and country.

6. Discourage widening of neighborhood streets which would significantly damage the character of the neighborhood as a means of accommodating through traffic.

Some of the most significant localized social problems in the state occur as a result of the widening of neighborhood streets to accommodate through traffic. Neighborhood street widening not only dislocates residences but can significantly damage the character of the area and disrupt the life-style of the remaining people. The desires of the people affected should be a carefully considered factor as to whether a neighborhood will be damaged. The use of "one-way pairs," in some cases, can be an acceptable alternative to the widening of streets.

7. Discourage residential and other incompatible land uses in noises and safety hazard areas surrounding airports.

Excessive noise, particularly high levels created by aircraft in the vicinity of airports, is a health hazard, as well as being socially disruptive to occupants of such areas.

8. Encourage the development of a statewide port plan and long-range comprehensive plans for all seaports in the state.

A major problem with most seaports in the state is the lack of long-range planning and the lack of a central authority to regulate and manage the activities which are occurring within the ports. Primary issues faced by all Florida ports is locating and acquiring sites for dredge spoil and finding ways to mitigate adverse environmental impacts of port expansion.

9. Encourage the utilization, development and expansion of existing major seaports over the establishment of new ports.

Florida has 14 deepwater ports. Tampa Harbor is the eighth largest cargo handling port in North American (43,230,138 tons in 1972). Jacksonville Harbor handled 14,885,935 tons of cargo in 1972. Florida's ports are experiencing serious funding and environmental problems. Since the state already has 14 ports, all or many of which are having funding and environmental problems, it may not be prudent state planning to contribute to the existing port problems by increasing the total number. The state should direct all its effort toward upgrading and maintaining the important existing ports.

10. Coordinate railroad development and abandonment plans with all levels of government.

The state, for the most part, has not had adequate knowledge or involvement in the development and abandonment of railroads. Rail transportation is significantly lower in cost than highway or air transportation and represents a feasible alternative to these modes. The state needs to take a more active role in analyzing and utilizing rails; particularly, the state should closely scrutinize plans to abandon railroads in light of their possible future utilization.

11. Support the continued utilization and maintenance of the state's existing inland waterways and established seaports as a major transportation mode, consistent with resource conservation and protection.

The state's inland waterways represent a significant portion of the state's total transportation system. These waterways along with the seaports are a major contributor to the economy of the state. However, the maintenance and utilization of these facilities requires careful planning, coordination with environmentally interested agencies and monitoring in order to insure that the state's water-related natural resources are protected.

B. Electrical Power Facilities

Policies

1. Require the location of large electric power plants in areas where present and projected population densities are low.

For environmental health and safety purposes, large electric power plants should not be located in populated areas or in the immediate vicinity of occupied structures not related to the plant.

2. Discourage urban and residential development in the safety hazard zone surrounding large electric power plants.

Land use should be controlled within the vicinity of power plants. Human occupation of these areas should be minimized as a precaution against hazards to environmental health and safety associated with power plants.

3. Require the location of power plants in areas with water resources sufficient for use by the plant, as well as for satisfying human needs and sustaining existing natural systems.

Power plants, being heavy water users, should be located in areas with water supplies adequate for the power plant without adversely affecting those water supplies necessary to satisfy present and projected population needs, and those necessary to sustain the existing plant and animal communities in the vicinity and downstream of the plant.

4. Encourage the location and design of power plants so as to avoid or minimize adverse effects on land resources of regional or state importance and restore depleted and degraded resources where feasible.

Land resources of state and regional importance which have been previously covered by policies include: prime and unique agricultural land, important mineral deposits, wetlands and submerged lands, beaches, shores and dunes, rare and unique natural areas and endangered plant and animal species.

5. Encourage the use of natural systems, where feasible and consistent with the natural values of these systems, for power plant water cooling and purification as an alternative to high cost structural facilities.

In some cases, if carefully planned, uplands, swamps, marshes and streams could be utilized for water cooling and purification with no significant adverse effects on the natural system. The use of natural systems for these purposes could eliminate or reduce the need for high cost cooling towers. However, such uses of natural systems should be subject to appropriate standards and evaluation criteria.

6. Encourage early coordination of plans for new plants among utility companies in order to avoid the creation of unnecessary excess power capacity. Private and investor-owned electric utility companies should coordinate their plans for new plants and for plant expansions with other companies and appropriate governmental agencies to avoid the creation of unnecessary excesses in power capacity.

The State Public Service Commission has indicated that such excesses in power capacity could occur if plans are not carefully coordinated.

AREAS OF MAJOR DEVELOPMENT POTENTIAL

The establishment of land development policies provides a basis for expansion of the plan to include identification of areas of major development potential.

Section 380.05, Florida Statutes, allows for the identification and designation of areas of major development potential within the State Land Development Plan. The selection of areas of major development potential, like the plan itself, is a continuous process - flexible enough to accommodate changes in state policies or economic conditions, yet solid enough to provide guidance for the orderly growth and development of such areas.

An area of major development potential, as designated in the State Land Development Plan, possesses certain natural and/or human resources which have the potential to develop or be developed, and the utilization of such resources is of significance to the achievement of the policies of the State Land Development Plan and other policies of the State of Florida.

An area of major development potential can be:

1. Major urban centers with a population of greater than 50,000 which, because they contain, among other things, extensive transportation systems, water distribution systems, waste collection systems, labor force, and market areas, will continue to attract additional development.

2. Minor urban centers with a population of 2,500 to 50,000 which, because they contain, or are in close proximity to, major infrastructure, such as interstate highways, industrial parks, or exploitable natural resources, may serve as growth centers to attract development.

3. Relatively undeveloped areas which contain resources suitable for extraction or use and/or major infrastructure in close proximity, could induce development.

As Florida continues to develop, the competition for limited resources, such as water, energy, and developable land, will increase accordingly. The State Land Development Plan is designed to achieve well-planned growth in the state by encouraging land development that will most efficiently utilize those valuable and finite resources. Furthermore, the policies of the plan will ensure that land development practices are consistent with the capabilities of the state's natural systems to accommodate such activities. The growth and development of local communities throughout Florida will ebb and flow according to individual attractability and the economic laws governing land costs and supply and demand. The policies of the plan will assist local decision-

makers in planning for this incremental growth. The designation of areas of major development potential, however, is intended to assert the state's interest by identifying particular geographic areas which possess positive economic inducements to growth with a minimum of environmental impediments to development. It is in these areas that the state will concentrate its efforts to promote new development either for the economic benefit for the state as a whole or to improve the quality of life for the area's residents.

The definition of areas of major development potential and the categories listed above are intentionally broad so as to allow for the wide and diverse range of areas that could qualify for designation. An area of major development potential could be the site of a new community, a regional jetport,a large-scale mineral extraction and processing area, a petro-chemical complex, or a significant redevelopment of an urban core. The identification of an area of major development potential is a complex and difficult process in which the needs of the state and the local populace, the growth potential of the study, the suitability of the surrounding natural systems, and the capability to provide any new development with adequate public services, are all thoroughly evaluated. Because of the diversity of the factors involved, it is not feasible to establish set formulae for selecting areas of major development potential. Each study area must be subjected to rigorous and judicious analysis.

There are general criteria, however, that should be met before an area qualifies for further consideration. For instance, an area of major development potential should not be severely constrained for development by the presence of extensive wetlands, by location within storm surge or high flood hazard areas, or by soils intolerant to large-scale development. The study area should be capable of assimilating new development and have the potential to provide adequate public services,such as water and transportation. Large urban areas are,inherently,areas of major development potential, but some would not qualify for such a designation in the plan because of inability to accept new growth without exceeding the capacities of their basic services.

Areas of major development potential will be identified on a regional planning area basis. Studies will be conducted cooperatively between the Division of State Planning and the Regional Planning Agencies in consultation with local governments. The North Central Florida Regional Planning Council (Region 3) has been selected as the prototype for this effort.

Study of Region 3 is underway and the following natural features of the region have been mapped: (1) wetlands and submerged lands; (2) flood-prone areas; (3) known and potential mineral locations; (4) prime agricultural lands; (5) soils; and (6) natural and unique areas.

Work is also in progress to prepare maps of the following: (1) general land use; (2) publicly-owned lands; (3) municipalities; (4) inter-state highways and primary roads; (5) navigation and flood control facilities; (6) water distribution and sewage treatment facilities; (7) airports; (8) railroads; and (9) other structural features.

The completed maps (1:250,000) will be compiled in a manner so as to provide a thorough understanding of those portions of Region 3 that

are severely limited for major development. The areas that reveal the least natural or physical impediments to development will be subjected to the second phase of evaluation by analyzing their (1) social and economic characteristics, and (2) proximity and relationship to major structural facilities or natural resources that will function as incentives for development. The final phase of analysis will entail an examination of specific data, such as water and sewer systems' capacities, transportation networks, population distribution, educational level, labor force availability and characteristics, to determine the area's capability to accommodate a significant infusion of development and the kind of development best suited to the area.

After this identification process is completed in consultation with the Region's local governments, the selected areas can be ranked according to their suitabilities. The areas ranked highest could then be designated in the plan as areas of major development potential.

As a prototype, the methodology used in the Region 3 study will be subjected to rigorous analysis to ensure its accuracy and effectiveness. The process for identifying areas of major development potential may require further refinement before it is applied to other regions throughout the state. The Division of State Planning will work closely with Regional Planning Councils and appropriate local governments to ascertain the need for any changes or refinements in this process.

IMPLEMENTATION

The most difficult aspect of planning is implementation. A plan serves no useful purpose unless it can be implemented. Often planners make the mistake of designing plan implementation schemes and strategies which are too idealistic or complicated to work.

It was not intended for this plan to invent and promote a new and different system for planning and doing business in the state. To the contrary, it is strongly believed that with few exceptions, existing laws, programs and agencies are quite capable of managing growth and development of the state. Consequently, it is believed and intended that implementation of this plan, for the most part, can and should be accomplished within the context of existing law.

In order for the plan to be meaningful and achieve its intended purpose, all levels of government and the public must lend support. Federal, state, regional and local governmental agencies must all join the effort if the state goals are to be reached. The public, for whom the plan was prepared, must contribute to its support.

There are four basic sections to the implementation part. These sections are: (1) Roles and Responsibilities; (2) Functional Programs by Agency; (3) Recommendations; and (4) Implementation Matrix.

I. ROLES AND RESPONSIBILITIES

The various levels of government and the public must participate to properly implement this plan.

Federal Government

The federal government influences most aspects of land development in the state. Almost every major land use decision involves a federal program or activity. Federal influence on land development occurs primarily as a result of: (1) direct federal development; (2) federal assistance and the ensuing requirements; and (3) federal regulation.

Direct federal development includes such facilities and activities as military installations and operations, federal buildings, interstate navigation facilities and national parks and forests. Federal assistance provided through over two hundred federal assistance and other programs impact on land development. In fiscal year 1975, an estimated $42 billion in federal funds were spent on these programs nationally. These programs

provide funding and technical assistance to state, regional and local governments and to private users for research, development, planning and operation.

Federal regulation of land use is carried on primarily by the Environmental Protection Agency, the Department of Housing and Urban Development, the Department of Interior and the Army Corps of Engineers.

Since the federal government has broad responsibilities in the development of the state, federal agencies can and should play a major role in the implementation of the State Land Development Plan. Federal agencies should recognize these policies in planning and developing their projects, as should state, local and private developers.

Federal assistance programs could be oriented to the furtherance of this plan. As examples: (1) areas of the state with urgent existing needs and areas of major development potential could be given higher assistance priorities than areas with resource conflicts or no urgent needs; (2) federal program objectives and policies could be modified to conform more closely with those of the state; (3) the awarding of funds or other assistance should be contingent upon receipt of evidence of compliance with state policies and objectives. Federal agencies, through the administration of regulatory programs, could assure compliance with state policies contained in this plan.

State Government

Major responsibility for implementation of state plans lies with state government. The state's role is divided between the legislative and executive branches of government. The direct legislative role involves consideration of the plan and approval of any portions which are not presently authorized by law. Legislative responsibility in land planning also involves passage of new legislation and appropriation and allocation of funds to the various executive agencies whose job it is to administer the law and operate state government.

As expressed in Chapter 23, Florida Statutes, "Any part of the plan not otherwise authorized by law shall be subject to review and approval by the legislature as expressed in its acts, both through substantive law and emphasis as contained in appropriations acts." Various items contained in the "Recommendations" section are not presently authorized by law and will consequently require legislative action prior to their implementation.

Success of this or any state plan is largely dependent upon state agencies. State agencies help carry out the law and, in so doing, administer various functional programs relating to land development. These programs, financed by both state and federal funds, involve research and development, planning and coordination, funding, regulation and technical assistance. Many of the federal programs mentioned earlier are partially administered by state agencies working in cooperation with federal agency counterparts.

State agencies are involved, in varying degrees, in every program described in the "Functional Programs" section of this plan. These functional programs alone provide the state with the capability to exert tremendous influence in the development of the state. It is the responsibility of each state agency to administer its respective programs toward further achievement of the objectives in accordance with the policies contained in this plan.

Regional Planning Councils

Chapters 160 and 163, F.S., authorize the combining of cities or counties jointly to establish regional planning councils. Ten regional planning councils have been established in the state. Regional Planning Councils provide linkage between local governments and with the state through preparation of plans and reports and provision of technical assistance and program review. Because regional planning councils are a forum for local governments, they can play a vital role in airing problems of greater than local concern and in implementation of the plan through performance of their normal functions.

Local Government

It is a responsibility of local government to plan and manage the use of the land under their jurisdiction. It is the philosophy and policy of the state that most land use decisions should be made at the local levels of government. State and federal involvement in land development decision-making should normally occur only when, by virtue of the nature or magnitude of the issues, resolution transcends local government's jurisdiction or fiscal capacity.

Article VIII of the 1968 Florida Constitution provided local governments with the privilege of "home rule." In 1973, Chapter 166, F.S., known as the "Municipal Home Rule Act," granted all powers of the state to municipalities, except those expressly prohibited by law. Chapter 125, the "County Home Rule Act," is the county counterpart for Chapter 166. By passage of this legislation, state government recognized that local governments should have, within specified limits, the power to govern their own affairs, including planning and regulation of land use. Provisions of the "home rule" statutes enable local governments to utilize mechanisms such as zoning, subdivision regulations, building and housing codes to regulate land use.

The Local Government Comprehensive Planning Act of 1975 requires that local governments prepare comprehensive plans. The Act further mandates that development regulations and all future development comply with the plan. Comprehensive plans, as legal documents, enhance the capability of local governments to manage land development.

The Public

To assume that this plan was prepared simply to assist governmental agencies in doing their job would represent an unfortunate misunderstanding of the basic intent. The sole purpose of government and its activities is to serve the public. This plan was prepared on the public's behalf to assure the continuing high quality of life for present and future generations of people of Florida.

How the land of the state is used is everybody's business for it affects each person either directly or indirectly. It is, therefore, every citizen's responsibility to demand that the land be wisely used. This responsibility requires that the public be knowledgeable about proper land use and participate in decision-making processes.

It is especially important that landowners recognize their role and the role of their land as an interdependent part of a community. It is the owner's responsibility to understand the character of the land and its natural as well as the pure economic values and to protect its capability to renew itself.

Public acceptance of the policies set forth herein is important to the success of the plan. Land planning and development performed in concert with the policies set forth in this plan will recognize wise use of the land and at the same time obviate the need for increased governmental regulation and involvement.

II. FUNCTIONAL PROGRAMS

The functional programs described below are the key to successful implementation of the State Land Development Plan. As noted above, adequate laws, regulations and programs are, with some exceptions, already in existence to implement the Plan. There are literally hundreds of federal, state and local programs affecting land development. This section attempts to identify some of the more important of these.

The programs are grouped by administering agencies within the four categories of local government, sub-state districts, state agencies and federal agencies. In many instances, a given program is readily associated with a specific agency; i.e.,that agency is solely responsible for its implementation or almost entirely so. However, in others, a particular program is implemented by several agencies, and it is difficult to place it in any one agency. An example of this is Section 208, Areawide Waste Treatment Management Planning. The Environmental Protection Agency (EPA) is the funding and regulating source of the program; the program is coordinated at the state level by the Department of Environmental Regulation (DER). However, the primary implementing agencies are designated "208 Planning Agencies" which can be Regional Planning Agencies (RPA's) or,in some instances, county planning departments. In this instance, the decision was made to place the program under DER because it was felt that this agency, in its state coordination role, can be the most effective in assuring compatibility with the State Land Development Plan. Moreover, it was felt that if the reader were to desire additional information on the statewide implications of the 208 plan, DER would be the most helpful and appropriate to consult. This approach was taken with other similar kinds of programs addressed in this section. It should be noted that in those cases where it was felt that two agencies had distinct but equally important roles in the managing of a given program, the program is discussed under both agencies. This is true, for example, of the Electrical Power Plant Siting Act in which both DER and the Department of Administration (Division of State Planning) have important roles.

Finally, it should be noted that with those agencies in which a number of specific functional programs relating to land development are identified, they are numbered and described separately below that agency heading. In cases where specific land development-related programs were not identified, but in which some of the normal activity of that agency relates to land development, a broad description of those functions is offered rather than specific program listings.

A. Local Government

The functional programs available to local government by which to implement the policies of the State Land Development Plan are extremely numerous and varied. There are, for example, local ordinances or zoning classifications which are specific to a given county or municipality, such as local tree, sedimentation and erosion control, and mining ordinances, "special treatment" zoning provisions, and so forth. In addition, there are a number of programs described in the Florida Statutes which apply to all local governments and which could affect implementation of the Plan. It is clearly beyond the scope of this document to describe programs specific to any one county or municipality, or, for that matter, all of the programs found in the Florida Statutes. The intention here is to describe several of the more important specific programs as examples of local mechanisms that could be utilized in implementation of the Plan.

1. Local Government Comprehensive Planning:

The Local Government Comprehensive Planning Act of 1975 (Sections 163.3161 - 163.3211, Florida Statutes) was enacted to establish and implement comprehensive planning programs to guide and control future development; assure cooperation and coordination among municipalities, counties, regional agencies and state government; and assure that public and private development is in conformance with adopted comprehensive plans.

Under the provisions of the act, municipalities and counties are to designate a local planning agency by July 1, 1976, which is then to prepare and adopt a comprehensive plan by July 1, 1979, with periodic updates every five years thereafter. (In some instances where local governments do not designate a local planning agency, the Division of State Planning is to prepare the plan.) The plan is to consider a wide range of "factors" including: future land use, traffic circulation, sewers, solid waste disposal, drainage, potable water, conservation, recreation and open space, coastal zone protection, utilities, mass transit, public facilities and building, community design, historical and scenic preservation, and others. The plan is to be implemented through adoption and enforcement of local regulations on the development of lands and waters in the area, which are based on the plan.

What is perhaps of equal importance to the local comprehensive plan itself, is the mandate for intergovernmental cooperation called for in the Act: The locality developing the plan is required to transmit a copy of it to the Division of State Planning, the appropriate regional planning agency, the local planning agency of the county (if it is the plan of a municipality), and any other local government who has filed a request for review. Moreover, the locality is to consider the objections or recommendations of these reviewers in the final construction of the plan. The Division of State Planning is charged with reviewing the

plan for its relationship and effect on the State Comprehensive Plan, for the impact of the plan on the lawful responsibilities of state agencies, and is then to provide written comments, objections and recommendations to the submitting government.

2. Platting of Lands:

Chapter 177, Florida Statutes, establishes consistent minimum requirements for the platting of lands by local government, although it does not exclude additional provisions or regulations by local ordinance, laws, or regulations. The act also gives local government additional powers to control and regulate the platting of lands.

3. Interlocal Cooperation:

Section 163.01, Florida Statutes, known as the Florida Interlocal Cooperation Act of 1969, permits local governments to cooperate with other localities in the provision of services and facilities that will best accommodate the geographic, economic, population and other factors of an area. The cooperation is to be done by "Interlocal Agreements" which provide for the duration of the agreement, its precise organization and administration, and the dispersal of funds.

4. Greenbelts:

Chapter 193, Part II, Florida Statutes, known as the Greenbelt Law, provides voluntary mechanisms to local governments to help preserve greenbelts and open space. These mechanisms are essentially two-fold. An expansion or broadening of the classification of agricultural lands makes it easier for an individual to get his land classified agricultural and thus lowers his tax assessment. At the same time, it gives the landowner an incentive to keep his land in green or open space uses. The act also provides for the conveyance of private development rights to a county. In choosing to utilize this mechanism, a landowner may have his land reassessed as outdoor recreation or park land, again significantly lowering his tax assessment. However, this reassessment applies only when the landowner enters into a ten-year agreement with the county to leave his land in the outdoor recreation or park land classification.

5. Water System and Sanitary Sewer Financing:

Under Chapter 153, Part I, Florida Statutes, the Water System and Sanitary Sewer Financing Law, counties are empowered and authorized to purchase, construct, maintain and improve water supply and sewage disposal systems. In support of such systems, counties can issue bonds, establish rates, and collect fees and other charges. Counties are further authorized to receive and accept from the federal government or any governmental agency, grants for the planning, financing and construction of water and sewer systems. Counties are also given the power

of eminent domain to extend or improve water and sewer systems under the act.

6. County Water and Sewer Districts:

Pursuant to Chapter 153, Part II, Florida Statutes, the County Water and Sewer District Law, counties may establish water and sewer districts in unincorporated areas in a county in order to provide these services. Such districts shall have elected commissions, and have the power to issue bonds, establish rates and collect fees to finance water and sewer service.

7. County Drainage:

The Drainage by Counties Act (Chapter 157, Florida Statutes) requires private landowners to petition the County Commissioner for the right to establish a public ditch, drain or canal. The intent of this act is to protect public health, convenience, welfare, or public utility. This act discourages indiscriminate alteration of natural water drainage and recycling patterns. The act requires the County Commission to analyze the effects of proposed ditches, drains or canals. If a proposal is deemed acceptable, the County Commission then has responsibility for contracting the work. The benefited landowners assume responsibility for all costs.

8. Beautification of Waters:

The Beautification of Waters Act (Chapter 342, Florida Statutes) provides counties or municipalities with a mechanism for enhancing and protecting their local waterways. The act allows a tax of not more than 1 mill on all property assessed by a county or municipality for the beautification of waterways.

9. New Communities:

Provisions for the establishment of new communities are set forth in the New Communities Act (Sections 163.01-75, Florida Statutes). The purpose of the New Communities Act is to provide legislative authority and guidelines for more orderly growth and development. The act provides positive incentives for quality development. It grants private developers certain limited status as a special improvements district, allowing him to operate and finance the cost, delivery, and maintenance of necessary pre-development projects, such as water, sewer, road, and drainage systems and community facilities.

The act also grants special powers to the districts. The district is empowered to assess, levy, and collect annual maintenance taxes, and to levy and collect ad valorem taxes. The district may also borrow money, contract for loans, and issue bonds. These powers are granted so that districts may provide public improvements and community facilities for water management and control; water supply, sewer and

waste water management; water collection and disposal systems; and other powers as stated in Section 163.622.

A potential new community developer must first obtain a development order, pursuant to Chapter 380, under the rules and guidelines of a development of regional impact. He then petitions the county, who has jurisdiction over the majority of his land, for the establishment of a new community. The petition must show a specific commitment to comply with all ecological, environmental, economic and other governmental, procedural and policy requirements of local and state general purpose governments.

10. Community Redevelopment:

Chapter 163, Part III, Florida Statutes, the Community Redevelopment Act of 1969, declares that slum and blighted areas that exist in some counties and municipalities of the state are "a serious and growing menace, injurious to the public health, safety, morals, and welfare of the residents of the state." The act authorizes the acquisition, clearance and disposition of decayed areas and the conservation and rehabilitation of salvageable areas.

Counties and municipalities are given the power to acquire slum or blighted areas; demolish and remove buildings; install improvements such as parks, playgrounds and utilities; acquire real property for rehabilitation; and to take other measures necessary for the redevelopment of an area. Counties and municipalities which undertake such a project are to develop a Community Redevelopment Plan for a specific community redevelop ment area or project. The plan is to be consistent with general land use plans of the particular county or municipality. Finally, counties and municipalities are authorized to issue bonds to finance community redevelopment projects.

B. Sub-State Districts

Regional Planning Agencies (RPA)

Chapter 160, F.S., authorizes the formation of Regional Planning Agencies (RPA's) by any two or more counties and municipalities. The State of Florida is presently divided into ten regional planning districts. Their powers are primarily to advise and coordinate constituent local governments in regional, metropolitan, county and municipal planning matters involving land use, water resources, highways, etc. (see Chapter 160.02, F.S.) in the interest of the public or for public purposes involving the expenditure of public funds.

RPA's provide a linkage between local governments and with the state and federal governments through the preparation of plans and reports. They also provide technical assistance to local government. The RPA's receive funds for various programs from local government and from both the state and federal governments. These programs cover a wide array of services.

The following is a list of programs that RPA's administer, and is a representation of the land development programs that a majority of the RPA's undertake.

1. DRI - Development of Regional Impact

The RPA serves as an intermediary agent in the review of DRI applications. They determine the extent to which development will efficiently use or unduly burden the natural, structural and socio-economic resources of the region.

2. ACSC - Areas of Critical State Concern

The RPA's assist local government in the development of land use regulations for areas designated as critical areas.

3. LGCPA - Local Government Comprehensive Planning Act

The RPA reviews and comments on all local government comprehensive plans. When local governments fail to develop a comprehensive plan, the RPA may assume responsibility for developing a comprehensive plan.

4. A-95 Review Program

RPA's have the responsibility of reviewing applications for federal assistance, federal development projects and environmental impact statements. This review is to insure that federally assisted activities are in compliance with state plans, programs, goals, objectives and policies.

5. Section 208 - Areawide Waste Treatment Management Planning

Section 208 of PL 92-500 calls for the areawide management of water quality problems. In several instances the Department of Environmental Regulation has designated a RPA as the areawide unit to administer the 208 program. This calls for the development and implementation of a plan which will result in coordinated waste treatment management for an area.

6. CZMP - Coastal Zone Management Program

This federally funded program is administered by the Bureau of Coastal Zone Planning. The RPA's in the state provide technical assistance to the Bureau for the development of a state coastal zone management plan.

7. Section 701 - The Comprehensive Planning Grants Program

RPA's are now eligible for 701 funds. These funds are to assist in the development of physical plans, formulation of policies and programs and in various management programs.

8. Transportation

In areas where Metropolitan Planning Organizations exist, RPA's are authorized to coordinate and develop transportation plans. These plans will guide all transportation development. The RPA also is involved in the coordination and development of regional air transport facilities.

RPA's are a forum for local government. They play a valid function in airing problems of greater than local concern and in coordinating and developing plans and programs that ameliorate these problems.

Water Management Districts (WMD)

The Florida Water Resources Act of 1972 (Chapter 373, F.S.) is the principal statute providing for water management in the state. The purposes of the Act are as follows: 1) conserve and control the waters of the state for their full benefical use; 2) promote conservation, development and utilization of surface and groundwater; 3) prevent

damage from floods, soil erosion, and excessive drainage; 4) preserve natural resources; and 5) develop and regulate water management structures as necessary. All waters in the state are subject to regulation except where specifically exempted by general law or specific act. "All water" is defined as water on or beneath the surface and in the atmosphere, and including natural and artificial water courses, lakes, ponds, diffused surface water, and water percolating, standing or flowing beneath ground, as well as all coastal waters under the jurisdiction of the state.

For purposes of implementation, the Act created five water management districts in the state: Northwest Florida, Southwest Florida, Central and Southern Florida, Suwannee River, and St. Johns River districts. An amendment to the state constitution in March of 1976 gave the water management districts ad valorem taxing authority. Although Chapter 373, F.S., created five WMD's, at this writing there are six---the Ridge Lower Gulf Coast WMD having been created as an interim body until Chapter 373, F.S., can be fully implemented.

The WMD's are given a wide range of responsibilities and powers: 1) regulation of consumptive water use; 2) regulation of the location, construction, repair, and abandonment of wells; 3)regulation of all alteration to water control structures (except for special exemptions such as agriculture); 4) acquisition of real property needed for flood control, water storage, and other management and to preserve wetlands, streams, and lakes (including the power of eminent domain for that property needed for flood control and water storage); and 5) preparation of any studies necessary to manage water resources, particularly the identification of saltwater intrusion areas. The Act is especially broad in coverage of groundwater; water management districts may implement any measure necessary to replenish groundwater including the purchase, exchange or injection underground of water and the construction of necessary structures.

The WMD's also have responsibility for preparation of the State Water Use Plan within the boundaries of their respective districts, although this effort is being directed and coordinated by the Department of Environmental Regulation (see the discussion of the Water Use Plan under the Department of Environmental Regulation which follows).

The regulatory and planning provisions of Chapter 373, F.S., provide the WMD's with extensive powers and authority for implementation of many of the policies in the Plan. Water has, in the past few years, become a critical factor in land use planning, and the WMD's will most likely assume a much more active role in land development decisions in the future.

Soil and Water Conservation Districts (SWCD)

Florida's Soil and Water Conservation Program officially began almost 40 years ago with the passage of the Soil Conservation Act, Chapter 582, F.S. This Act authorized the organization of Soil Conservation Districts by petition and referendum. These districts are legal subdivisions of state government and are known as Soil and Water Conservation Districts (SWCD's). Sixty SWCD's have been organized in Florida, including all counties except Collier, Dade, and Monroe.

The primary purpose of SWCD's is to develop and conserve soil, water, plants and related resources and provide leadership in related phases of environmental improvement. Some of the more important provisions of Chapter 582, F.S., include the following powers of districts and supervisors: 1) conduct surveys, investigations and research relating to the character of soil erosion and floodwater and sediment damage, including the necessary measures of utilizing soil and water resources and disposal of water; 2) enter into agreement with landowners or occupiers to conserve soil and water resources and provide assistance in applying the necessary conservation measures; 3) within the limitations imposed by availability of funds and other resources, to provide machinery, seeds, fertilizer and plant materials to carry out soil and water conservation practices on lands within the district; 4) enter into agreements with federal and state agencies to further project action relating to soil and water conservation. (Examples: Public Law 566, Small Watershed Projects and Resource Conservation and Development Projects (RCD)); 5) districts also have the authority to invoke land use regulations to conserve soil and water resources. These regulations cannot be invoked without a referendum in which the majority of those voting favor the regulations.

The kinds of assistance available through SWCD's include: 1) Soils information: includes general soil maps with interpretations of natural soil conditions--their limitations, suitabilities, or potentials to be considered in planning or making land use decisions. Detailed soil maps and interpretations are provided, where available, at district level; 2) Conservation Operations Program: individuals, groups or units of government within the district receive technical assistance in conservation planning. Such assistance may be a simple inventory and evaluation of a problem area or it may be a complete and sometimes complex conservation plan.

C. State Agencies

Department of Administration/Division of State Planning (DOA/DSP)

1. Local Government Comprehensive Planning Act Review:

Under requirements of the Local Government Comprehensive Planning Act of 1975 (Sections 163.3161-163.3211, F.S.), DSP is charged with reviewing local government comprehensive plans in regard to their relationship and effect on the State Comprehensive Plan (see number 2 below) and the impact of such plans on the lawful responsibilities of state agencies. DSP is to provide written comments, objections and recommendations to the submitting government.

It should also be noted that in these instances where local governments do not designate a local planning agency, DSP is charged with the responsibility of preparing the plan.

2. State Comprehensive Planning:

The Florida State Comprehensive Planning Act of 1972 (Section 23.011-23.019, F.S.) created the Division of State Planning under the Department of Administration, and charged this agency with the development of the State Comprehensive Plan. The plan is to provide long-range guidance for "orderly social, economic, and physical growth of the state by setting forth goals, objectives and policies." The plan is to be a continuing process of preparation and revision, based on the best available data, and is to consider the following factors: a) reports, studies and plans of every department and agency of state and local government; and b) existing and prospective resource capabilities and needs of state and local levels of governments.

In addition, it is the responsibility of the Division to assist in the preparation of the executive budget and legislative program, coordinate state agency planning and programming activities, coordinate planning among all levels of government, serve as the state planning and development clearinghouse and to make basic demographic, geographic and economic data and projections available to all agencies concerned with development in the state.

The Division's responsibility to coordinate planning activities among all levels of government is significant in that planning coordination in land development is often missing. Planning coordination among all levels of government is needed to prevent duplication of effort, avoid overlapping responsibility and conflicting regulatory mechanisms, and provide consistency in addressing land development problems. Although the Division has responsibility for planning coordination, coordination at all levels of government by all agencies is essential to the proper implementation of the State Land Development Plan.

3. Areas of Critical State Concern:

The areas of critical state concern program was authorized under the Florida Environmental Land and Water Management Act of 1972 (Chapter 380, F.S.). The intent of the program is to identify particular geographic areas which are of statewide or regional significance and assure that local land development regulations are sufficient to protect the unique characteristics of the area. In a broader sense, the aim of the program is to establish a strong intergovernmental partnership to reinforce local processes for guiding growth and development, while preserving private property rights.

Chapter 380, F.S., requires that areas of critical state concern be designated only for: a) an area containing, or having a significant impact upon, environmental, historical, natural or archaeological resources of regional or statewide significance; b) an area significantly affected by, or having a significant effect upon, an existing or proposed major public facility or other area of major public investment; c) a proposed area of Major Development Potential, as designated in the State Land Development Plan.

The process by which a critical areas designation is to occur is described in Chapter 380, F.S., in some detail, but it can be summarized as follows: a) nomination and review: any governmental agency, private organization or citizen may nominate an area for designation; nominations are reviewed by the Division of State Planning for consistency with Chapter 380, F.S., standards; b) classification: the nomination is classified as to referral to the Environmentally Endangered Lands program, informal resolution, rejection, or further study and recommendation; c) report preparation: the DSP prepares a detailed report on the area, including in it boundaries, reasons why the area is critical, etc.; d) designation: the Administration Commission receives the recommendations of the Division of State Planning and may adopt, adopt with modification, or reject the nomination; e) preparation of local land development regulations: local governments prepare and adopt new or modified land development regulations such as local zoning subdivision regulations, etc., consistent with the designation; f) approval and implementation of local land development regulations: local development regulations are reviewed by the Division of State Planning to assure that regional or statewide concerns are met. Local government assumes responsibility for implementation.

To date, three areas - Big Cypress Swamp, Green Swamp, and the Florida Keys - have been designated as Areas of Critical State Concern.

4. Developments of Regional Impact:

The Florida Land and Water Management Act of 1972 (Chapter 380, F.S.) created the Developments of Regional Impact (DRI) Program in Section 380.10, F.S. Under the requirements of this section, developers proposing

certain types of large-scale developments are required to obtain DRI approval from local governments before developing. Twelve types of development are included: airports, attractions and recreation facilities, transmission lines, hospitals, industrial plants and industrial parks, mining operations, office parks, petroleum storage facilities, port facilities, residential developments, schools and shopping centers. Threshold standards for each of these types are given in Chapter 22F2, Florida Administrative Code.

The purposes of the DRI process are to assure that citizens affected by a local decision having multi-county effects have a voice in the decision-making process and to assure that local governments take into account the regional impacts of development.

There are three principal governmental entities involved in the DRI process: local government, the appropriate Regional Planning Agency, and the Division of State Planning (Bureau of Land and Water Management). DSP's responsibilities under the Act are primarily to: develop guidelines and standards to be used in determining DRI's; determine whether a particular development is a DRI, publish a weekly list of all notices of applications of DRI's; and appeal a local government approval or denial of a DRI before the Land and Water Adjudicatory Commission (described below).

The key elements in the DRI review and approval process are as follows: a) determination that the proposed development is a DRI; b) filing of a DRI application for development approval. The DRI application requires extensive consideration of what the expected impact of the development will be to a number of key aspects of the region including: the environment and natural resources; the economy, public facilities, transportation, and housing. In addition, other considerations specific to the type of development are required; c) Regional Planning Agency (RPA) review: The RPA reviews the application to assure that it contains sufficient information for regional review, and assesses the extent to which the development will efficiently use or unduly burden the natural, structural, and socio-economic resources of the region; d) local DRI public hearings; and e) local DRI development approval or denial.

In considering whether the development should be approved, denied or approved with conditions, the local government is to consider whether and to what extent: a) the development unreasonably interferes with the achievement of the objectives of an adopted state land development plan applicable to the area; b) the development is consistent with local land development regulations; and c) the development is consistent with the report and recommendations of the regional planning agency.

If the development is an Area of Critical State Concern, it must comply with land development regulations adopted through that process.

The right to appeal the local government decision is established in Section 380.07 of the Act. This section creates the Florida Land and Water Adjudicatory Commission (which consists of the Administrative Commission) to hear appeals. Appeals can be made by the landowner, developer, appropriate RPA, the Division of State Planning, and upon showing of good cause, other materially affected parties.

5. A-95 Review Program:

Circular A-95, issued by the Office of Management and Budget (OMB), establishes procedures for state and regional coordination and review of many federal activities which are of concern to state and local government. In so doing, the circular implements portions of four federal acts: Title IV of the Intergovernmental Cooperation Act of 1968; Section 204 of the Demonstration Cities and Metropolitan Development Act of 1966; Section 102(2)(c) of the National Environmental Policy Act of 1968; and Title VI of the Civil Rights Act of 1964.

The major provisions of OMB Circular A-95 are that it: a) authorizes state and regional review of notifications of intent to apply for federal grants, loans, loan guarantees and other federal assistance projects and activities; b) enables state, regional and local review of direct federal development projects such as buildings or facilities and acquisition, use and disposal of land; c) requires state review of state plans which contemplate the use of federal assistance; and d) it establishes procedures for state and regional review of federal agency environmental impact statements.

Almost all federal activities in the state are subjected to state and regional review under Circular A-95. The program is administered at the state level by the Division of State Planning and at the regional level by the ten Regional Planning Agencies. The A-95 program provides the state, as well as regional and local governments, with the ability to insure that federally assisted or undertaken activities in the state are in compliance with their plans, programs, goals, objectives and policies. This program also provides the potential of guiding federal assistance and activities to high priority geographical areas or programs.

6. Electrical Power Plant Siting:

Procedures and regulations concerning electrical power plant siting in Florida are set forth in The Florida Electrical Power Plant Siting Act (Chapter 403.501-403.516, Florida Statutes). The intention of the act is to provide a procedure for the selection and utilization of sites for electrical generating facilities such that "the location and operation of electrical power plants will produce minimal adverse effects on human health, the environment, the ecology of the land and its wildlife, and the ecology of state waters and their aquatic life."

The Act is administered jointly by the Division of State Planning and the Department of Environmental Regulation. Ten-year site plans are prepared by each electric utility company and are to include estimates of power-generating needs over that period of time and give proposed plant site locations. The Division of State Planning is responsible for coordinating reviews of the plans among applicable local, state, and federal agencies and considers the following factors: the need for power in the area to be served; the anticipated environmental impact; possible alternatives to the plan; and conformance with the state comprehensive plan. Based upon the review, the Division then classifies the plan as "suitable" or "unsuitable," and presents its recommendations to the Department of Environmental Regulation (DER) which has the responsibility of certifying sites under the Act.

7. State Energy Office

Pursuant to Chapters 74-186 and 75-256, Laws of Florida, the primary functions of the State Energy Office consist of (1) energy data collection and reporting, (2) federal energy policy and program analysis, (3) petroleum allocation and contingency planning and program development and (4) energy conservation program development. Although all these functions may have an influence on land development in the state, the energy conservation programs are particularly noteworthy. The programs include regional energy conservation programs spearheaded by ten Regional Energy Action Committees, a state energy conservation plan and continuing energy conservation programs on a regional basis. A related program entitled "Project Conserve" encourages improvement of the energy efficiency of homes through weatherstripping, improved insulation, installation and double-glazed windows and the use of heat pumps.

Currently, the State Energy Office in cooperation with the Division of State Planning is preparing an Energy Element of the State Comprehensive Plan.

Department of Environmental Regulation (DER)

1. Water Quality Programs:

The statutory basis for water quality programs in Florida is provided primarily in the following acts: (a) Federal Water Pollution Control Act and Amendments of 1972(FWPCA; Title 33 U. S. Code, Section 1251 et. seq.); (b) Florida Air and Water Pollution Control Act (Chapter 403: Part I, F.S.); and (c) sections of Chapter 253, F.S., pertaining to dredge and fill operations. Previously, the responsibilities for implementing various sections of these acts were distributed among several state agencies. However, in 1975, with the passage of the Environmental Reorganization Act (Chapter 75-22, Laws of Florida) the Department of Pollution Control, the Bureau of Sanitary Engineering of the Department of Health and Rehabilitative Services, and certain functions of the Department of Natural Resources and the Board of Trustees of the Internal Improvement Fund were incorporated into the Department of Environmental Regulation (DER). This agency is now the principal administrating agency for water quality programs in the state, including the state level authority given in the FWPCA.

The FWPCA is an extraordinarily comprehensive act, but briefly, its principal components are as follows: a) requires specific effluent standards for individual facilities, or point sources, to be implemented through permits; b) requires mandatory use of the best available technology for all new facilities; c) establishes stringent standards for toxic discharges; and d) expands and strengthens the federal grant program for municipal treatment plants. (Another major section of the Act, Section 208, which deals with area wide waste treatment planning, is of such particular importance to land planning that it has been described separately below).

The Act sets up a number of programs to carry out these requirements, including: A) the National Pollutant Discharge Elimination System (NPDES); B) Section 404 programs which set up cooperative agreements between the Environmental Protection Agency (EPA) and the Army Corps of Engineers to prevent water quality degradation in navigable waters; and C) provisions for comprehensive water quality plans in the form of river basin plans (the DER has completed these river basin plans for the 13 major river basins in Florida in 1975).

The balance of the water quality program in Florida is provided for in Chapters 403 and 257, F.S. Much of Chapter 403, F.S., is similar to the FWPCA, and it was intended that it be consistent with the federal act. Basically, Chapter 403, F.S., gives DER the power to control air and water pollution; requires the development of long-range plans for air and water quality control and authorizes a permitting program for discharges into state waters. Additionally, DER has classified waters of the state according to their usage, as follows: Class I - public water supplies; Class II - shellfish harvesting; Class III - recreation, propagation and management of fish and wildlife; Class IV - agricultural and industrial water supply; and Class V - navigation, utility and industrial use. DER has determined minimum criteria to apply to each of these classifications. In addition, provisions of Chapter 253, F.S., require regulation of dredge and fill on state land. The DER acts on applications to dredge and fill based upon the expected impact on state-owned land.

Clearly, water quality programs in Florida have fundamental and far-reaching effects on land development in the state; water quality rules and regulations, as promulgated and enforced by DER, EPA and local pollution control agencies, are prime implementation mechanisms for many of the land resource policies in the plan--water resources, wetlands, beaches and dunes, soils--as well as several of the structural and public facilities policies. To the extent that water quality planning and land development planning are continuing and evolving processes, future efforts should be directed toward a much closer interaction of these two activities to enhance both the quality of life and the environment in the state.

2. Water Use Plan:

Section 373.036, F.S., requires that a State Water Use Plan be developed as rapidly as possible for the purposes of studying existing water resources in the state; the means and methods of conserving

and augmenting such waters; existing and contemplated needs and uses of water for protection of fish and wildlife, irrigation, mining, power development, and domestic, municipal and industrial uses; and all other related subjects, including drainage, reclamation, floodplain or flood-hazard area zoning and selection of reservoir sites. The plan is being coordinated by the Department of Environmental Regulation, Bureau of Water Resources, with an estimated completion date of 1978.

During the formulation of the plan, DER is to coordinate the inputs of various federal, state and local agencies, especially the Water Management Districts. The plan is actually being prepared on a Water Management District basis, with each district completing its portion of the plan, which will then be integrated and finalized by DER. Also, DER is to work with the Division of State Planning in the construction of the plan, in that it is intended that it be a functional element of the State Comprehensive Plan.

Finally, the State Water Use Plan is to be developed in coordination with the State Water Quality Plan and other water quality standards and classifications of the state. These plans, standards and classifications, considered as a whole, will constitute the Florida Water Plan.

3. Air Quality:

The air quality program in Florida is administered by DER pursuant to the Florida Air and Water Pollution Control Act (Chapter 403, Part I, F.S.) and the Federal Clean Air Act and Amendments of 1970 (42 U.S. Code, Section 1857 et. seq.). The Environmental Protection Agency (EPA) is the administering agency of the Clean Air Act, while DER is the implementing agency on the state level.

Under these two acts DER has established ambient air quality standards and emission standards designed to protect or upgrade air quality, including the non-degradation of areas with superior air quality. Standards have been set for six major pollutants: carbon monoxide, sulfur dioxide, nitrogen oxides, photochemical oxidants, particulates, and ozone. Both new and existing sources of air pollution must comply with Chapter 17-2 (Rules of DER) in which standards of allowable emissions are given. So-called "complex" sources of air pollution--shopping centers, major thoroughfares, and any other areas that concentrate large numbers of automobiles--must apply to DER for a permit, if they exceed a given traffic density.

The Clean Air Act of 1970 called for the achievement of national ambient air quality standards by 1975, and the maintenance of these standards thereafter. In fulfillment of this requirement, DER developed an Air Implementation Plan in 1972 to achieve these standards, and is presently preparing "Air Quality Maintenance Plans" for selected areas (Duval, Polk, Hillsborough, and Pinellas Counties) to assure that air quality standards are met in the future.

4. Areawide Waste Treatment Management Planning (Section 208):

Areawide Waste Treatment Management Planning is the concern of Section 208 of the Federal Water Pollution Control Act Amendments of 1972 (PL 92-500). Section 208 recognizes that many water quality problems are too complex to be solved by additional applications of waste treatment technology; that to solve the toughest water quality problems, many aspects of water pollution control must be brought together into a united areawide plan. Thus, the 208 plan must consider the treatment of municipal and industrial wastes, so-called "non-point" pollution sources, septic tank use, and many other factors. This section also recognizes that water quality and land use are intimately related and that the control of many water pollution problems ultimately requires some measure of land use regulation.

Section 208 is administered nationally by the U.S. Environmental Protection Agency; DER administers the program at the state level. Prior to June 30, 1975, these plans were 100% federally-funded. Since July 1, 1975, the funding is 75% federal and 25% state or local.

Requirements of 208 plans are summarized as follows: a) identification of all treatment works needed for a 20-year period, including construction priorities and timetables; b) mechanisms to coordinate all waste treatment planning activities within a given area; this includes the location, modification or construction of all facilities, as well as insuring that industrial wastes are pretreated to remove substances incompatible with municipal treatment systems; c) the identification of the management structure responsible for implementing the plan; d) the identification of non-point pollution sources in the area and procedures for their control. Such non-point sources include pollution from agriculture, silviculture, mining, construction activities, solid waste disposal, septic tanks, and salt water intrusion; e) regulatory authority to implement the plan; f) other information necessary to implement the plan including financial arrangements, time requirements, costs of implementation and the probable economic, social, and environmental effects of implementation; and g) identification of methods of disposing of residues and treated waste water remaining after treatment, such as land spreading, spray irrigation, and deep well injection.

Ultimately, 208 plans will be prepared for the entire state. These plans will be prepared by regional and local planning areas as designated by the Governor. In areas where no planning agency receives 208 planning designation, the Department of Environmental Regulation will prepare the plans.

Presently there are 14 designated 208 planning areas which generally conform to the most populous areas of the state and areas where water pollution problems are the most severe.

The basic purpose of 208 planning is to protect and enhance water quality. Water quality protection and enhancement is a primary objective sought by the policies in the Water Resources section of Part II of this plan. Since the objectives of the State Land Development Plan and those of Section 208 are mutually compatible, plans prepared under Section 208 should utilize the policies contained herein as a means of supporting the state's interests.

5. Waste Treatment Management (Section 201)

Section 201 of the Federal Water Pollution Control Act Amendment of 1972 (PL 92-500) requires the development and implementation of waste treatment management plans and practices and provides 75% federal funding for project works. To qualify for grants, alternative waste management techniques must be studied and plans and practices must include the best practicable waste treatment technology, including recycling of water, confined disposal and consideration of advanced waste treatment techniques.

This Section requires areawide waste treatment and control of all point and nonpoint sources of pollution, where practicable. It encourages recycling of potential sewage pollutants through agricultural, silvicultural and aquacultural production, and the integration of facilities for sewage treatment and recycling with facilities to treat, dispose of or utilize other industrial and municipal wastes, including solid waste and thermal wastes. Waste management combined with open space and recreational consideration is also encouraged.

Any state, municipality, intermunicipal or interstate agency is eligible for grants to construct publicly owned treatment works.

Approximately eighty percent of the unincorporated areas in the state currently utilize septic tanks. However, about two-thirds of the state's population is served by sanitary sewage systems.

Wastewater treatment systems in the state consist primarily of secondary treatment and advanced wastewater treatment. Wastewater disposal methods include discharge to surface water (about 90% of all wastewater by volume), land spreading (including spray irrigation) and deep well injection.

The state's Wastewater Management Program is administered by the Department of Environmental Regulation, pursuant to Chapter 403, Florida Statutes, and is subject to Chapters 17-3, 17-4, 17-16, and 17-19, Florida Administrative Code.

6. Solid Waste Recovery and Management:

In 1974, the Florida Legislature passed the Resource Recovery and Management Act (Chapter 403.701 - 403.713, F.S.) in recognition of the fact that "inefficient and improper methods of managing solid waste create hazards to public health, cause pollution of air and water resources, constitute a waste of natural resources, have an adverse effect on land values, and create public nuisances," and further that "problems of solid waste management have become a matter statewide in scope."

The Act created the Resource Recovery and Management Council which was to study all facets of resources recovery and management, make recommendations for new legislation, approve a proposed state resource recovery and management program to be developed by the Department of Environmental Regulation, and recommend sites and

funding requirements for a state resource recovery and management pilot project. The pilot project was to coordinate and advance existing technology in the field of resource recovery, management and recycling and "whenever practicable, promote and encourage the production of energy from solid waste."

In its Interim Report, the Advisory Council has taken the position that there are a number of pilot projects underway across the nation which consider new technologies in solid waste management, and that what Florida needs instead, is a pilot planning program in solid waste management. To this end the Council has proposed the designation of six state regions for pilot programs. Such pilot programs would demonstrate the total feasibility--political, economic and technical--of resource recovery and management in Florida.

The proper planning and management of solid waste programs is a critical aspect of land development. The ongoing and frantic search for solid waste disposal sites by various municipalities throughout Florida is expensive, wasteful and underscores the importance of this component of the planning process. The designation of Areas of Major Development Potential offers a unique opportunity to establish an integrated resource recovery program simultaneously with other land development.

7. Public Works Program :

The State Public Works Program consists of the federally assisted water resources research planning and development projects in the state. The program is presently limited to projects funded through the U.S. Army Corps of Engineers and includes flood control, navigation, beach renourishment and erosion control, and urban studies.

The program is administered as follows: a) in accordance with Section 373.026(9)(a and b), F.S., the Department of Environmental Regulation (previously administered by the Department of Natural Resources) holds an annual conference at which time proposals for the program are presented; b) upon completion of the conference, DER selects the projects for inclusion in the program; c) projects selected are submitted to the State Clearinghouse for review by all interested state and local agencies; d) DER, based upon consideration of review comments received through the State Clearinghouse, compiles the final Public Works Program and submits it to Congress in the form of appropriation requests.

In fiscal year 1975, Congress appropriated $36,593,000 for the Florida Public Works Program. The State Public Works request for fiscal year 1976, was $64,642,000.

DER is presently contemplating the expansion of the state's Public Works Program to include more federally-assisted water resources projects, including those administered by the U. S. Soil Conservation

Service and the U.S. Geological Survey. This program offers the state vast potential in guiding growth and development and, specifically, in implementing various water resources, wetland and submerged lands, beaches and dunes, hazard areas and public facilities policies contained herein.

8. Electrical Power Plant Siting:

Procedures and regulations concerning electrical power plant siting in Florida are set forth in The Florida Electrical Power Plant Siting Act (Chapter 403.501 - 403.516, F.S.). As noted above, the Act is administered jointly by the Division of State Planning (DSP) and DER. DSP's responsibilities under the Act have been described above.

The DER has responsibility for certifying sites under the Act. Upon receiving the recommendations of DSP as to the suitability of the plan, DER is to consider the following site criteria in its appraisal: cooling system requirements; proximity to load centers; proximity to navigable water and other transportation systems; soil and foundation conditions; availability of water; land use; accessibility to transmission and environmental impact. Upon completion of its analysis, the DER conducts public hearings to determine if the site is consistent and in compliance with existing land use plans and zoning ordinances, and then presents its findings to the Governor and Cabinet for final certification.

The Power Plant Siting Act is an effective tool in insuring that electric power plants conform with state goals, objectives and policies. The specific policies relating to power plants, as well as various land resource policies in this plan, should be used in reviewing ten-year site plans and in site certification.

Department of Natural Resources (DNR)

1. Beaches and Shores Preservation:

The Beaches and Shores Preservation Act (Chapter 161, F.S.) was enacted for the purpose of controlling beach erosion. This is to be accomplished by: providing beach nourishment and erosion control programs; regulating coastal construction; and establishing setback lines on sand and shell beaches fronting on the Atlantic Ocean and Gulf of Mexico, seaward of which construction is not occurring without authorization. The agency responsible for the implementation of this Act is the Department of Natural Resources (Bureau of Beaches and Shores).

The preservation of beaches and shores involves several programs: a) the requiring of permits for any construction or reconstruction projects below the mean high water line of any body of tidal water, including groins, jetties, moles, breakwaters, seawalls, revetments, causeways, impermeable or solid design docks, and related structures, and any deposition or removal of beach material; b) the establishment of coastal construction set back lines on a county-by-county basis. Setback lines are to be scientifically determined although it is typically the mid-point of the first dune or dune ridge. Until scientifically determined setback lines have been established for a county, new construction is not to be allowed closer to the sea than 50 feet landward of the vegetation line, although variances can be allowed under some circumstances; c) the coordination of beach restoration and erosion control projects throughout the state.

In administering this program consideration should be given to the policies set forth in the "Beaches and Dunes" section of Part II of this plan in the establishment of setback lines and in considering applications for coastal construction permits or variances.

2. Environmentally Endangered Lands Program (EEL):

The Land Conservation Act of 1972 (Chapter 259, F.S.) declares it to be the state's intent to protect and conserve environmentally unique and irreplaceable lands as valuable ecological resources of the state. The Act charges the Executive Board of the Department of Natural Resources (DNR) with the preparation and maintenance of a comprehensive plan to conserve and protect environmentally endangered lands, and it authorized $240 million in bonds ($200 million for the purchase of endangered lands and $40 million for new parks).

The EEL Program is administered by the DNR which establishes guidelines for program administration and screens and appraises proposals for acquisition. Proposals for state acquisition may be made by any source. The program utilizes two advisory committees to assist the Executive Director of the DNR in evaluating proposals for acquisition.

The first committee, entitled "Interagency Planning Committee," consists of staff members of agencies concerned with land resources and acts as advisory to the "Interagency Advisory Committee" made up of an agency secretary, executive director and various division directors. The "Interagency Advisory Committee" makes recommendations to the Executive Director of the DNR regarding proposed acquisition.

As of October, 1976, 12 tracts of land with a total area of 165,399 acres (plus an unknown amount of additional acreage in the Big Cypress Swamp yet to be acquired) had been authorized for purchase at a total cost of $103,567,491.45. 650 proposals had been made and 11 were in the first priority group as of October, 1976.

An environmentally endangered land is defined by the EEL program as "any land area and related water resources determined to contain naturally occurring and relatively unaltered flora, fauna or geological conditions and whose interdependent biophysical components, including historical and archaeological resources, might be essentially preserved intact by acquisition." The area must a) be of sufficient size to materially contribute, in some substantial measure, to the overall natural environmental well-being of a large area or region; or b) contain flora, fauna, or geological resources characteristic of the original domain of Florida and which are unique to or scarce to the region; or c) be capable of providing significant protection to natural resources of recognized or statewide significance if acquired. Finally, there must be a reasonable likelihood that area's resources will be subjected to some activity of man which might result in their irretrievable and substantial loss.

The Endangered Lands Program provides an excellent mechanism for protecting areas or resources sensitive to development, particularly areas which need to be kept intact and unaltered. This program should be used to the extent necessary to preserve representative units of each type of ecological system in the state and protect rare and endangered species of plants and animals. Further, regional planning agencies, upon assessment of the resources and needs of their regions, should submit proposals for acquiring environmentally endangered lands.

3. Coastal Zone Management Program:

The Coastal Zone Management Program (CZMP) was established by the Coastal Zone Management Act of 1972 (PL 92-583). That Act declares it to be national policy to "preserve, protect, develop, and where possible, to restore or enhance the resources of the coastal region by encouraging applicable states to prepare and implement management programs for the coastal zone." The National CZMP is administered at the national level by the National Oceanographic and Atmospheric Administration (NOAA) in the Department of Commerce. The Bureau of Coastal Zone Planning of the DNR administers the program at the state level.

The program has two phases which are funded separately by the U. S. Department of Commerce. The first phase (Section 305) is "program development" and cannot exceed three years (extended for one additional year in July, 1976). The program is required to: determine the uses of land and water permitted in the coastal zone; designate "geographical areas of particular concern"; designate land and water uses in the coastal zone to be given priority; and establish an organizational structure and mechanisms for implementing the programs. Upon approval of the program by the Secretary of Commerce, Phase II, which is "program administration," may begin.

The federal program also provides grants to assist states to acquire, develop and maintain "estuarine sanctuaries" for use as "natural field laboratories." These areas may include all or part of an estuary and adjoining transitional areas and adjacent uplands which constitute a natural unit, and are meant to facilitate the study of the processes which occur in the coastal estuaries.

The state CZMP (Phase I - Section 305) began in March, 1974. The CZMP in Florida is being developed by the DNR (Bureau of Coastal Zone Planning) in coordination with regional planning agencies and the Division of State Planning. The program when completed will be included as an Element of the State Comprehensive Plan.

As the CZMP develops, the policy components will be coordinated with this plan to assure compatibility of both plans. The program when completed will enable a more comprehensive method for guiding growth and development in the coastal zone and will be very instrumental in implementing this plan.

4. Aquatic Preserves Program:

The Aquatic Preserves Program was established in 1969 by Resolution 69-11 of the Board of Trustees of the Internal Improvement Trust Fund. The Florida Aquatic Preserve Act of 1975 (Sections 258.35-258.46, F.S.) gave the program a statutory basis, and established 31 aquatic preserves consisting of over 800,000 acres. The intent of the program is to insure the protection, preservation and public enjoyment of certain state-owned submerged lands of exceptional quality and value. Private lands may also be included in an aquatic preserve upon specific authorization by the owner.

The Aquatic Preserves Program which is administered in the Division of Resource Management in the DNR operates in two essential ways: A) the discouragement of the sale of state-owned valuable aquatic areas (specific legislation already prohibits the sale of submerged lands in Biscayne Bay, Estero Bay, and Pinellas County waters), and B) strict regulation concerning activities and alterations in established Aquatic Preserves. For example, dredge and fill activities are prohibited in aquatic preserves except for authorized navigation projects.

Aquatic preserves can be effective means of wetlands protection, and, as such, could be an important component in the implementation of the Land Development Plan.

5. Oil Spill Prevention and Pollution Control:

The Oil Spill Prevention and Pollution Control Act (Sections 376.011-376.21, F.S.) recognizes that "the highest and best use of the seacoast of the state is as a source of public and private recreation" and that spills, discharges and escape of pollutants from vessels, offshore facilities and onshore facilities are "inimical to the paramount interests of the state." To this end, the statute impowers the Department of Natural Resources to: a) deal with the hazards and threats of spills; b) require the prompt containment and removal of pollutants spilled; and c) establish a fund to provide for the inspection and supervision of those activities which may result in spills and to guarantee the payment of damage claims.

The Act specifically prohibits the discharge of oil, oil by-products and other pollutants into state waters and also prohibits the operation of a terminal facility without a license issued by DNR. Regulations regarding operations, inspections, procedures for reporting spills and other matters are allowed for in the act, as is the establishment of eleven regional control districts, one each for the eleven deepwater ports of the state. The Act established the Florida Coastal Protection Fund, a nonlapsing, revolving fund, to which is credited all license fees, penalties, administrative expenses and costs of removal described in the act. The fund is limited to $5 million dollars. All terminal facilities and vessels in the state are required to file a surety bond to cover the costs of cleanup and damages resulting from a spill. Finally, the Act allows for an emergency proclamation by the Governor to deal with spills which occur in state waters.

6. Mined Land Reclamation:

The reclamation of mined lands in Florida is tied to Sections 211.30-211.33, F.S., the tax on the severance of solid minerals. Under that act, the mining of solid minerals from the state requires the payment of a severance tax of 5% of value of the mineral at the point of severance. However, solid minerals upon which a sales tax is ultimately paid to the state or which are sold to governmental agencies in the state are not subject to the tax. Fifty percent of the severance tax is credited to the general revenue fund, while the balance is put in a Land Reclamation Trust Fund. Refunds are then made from the trust fund to cover the costs of reclamation, up to the amount paid into the fund. If a reclamation project is abandoned, the money in the trust fund is forfeited.

The Act requires that a reclamation and restoration program be submitted to DNR for each proposed reclamation site. This plan is to consider: a) control of the physical and chemical quality of the water draining from the area of operation; b) soil stabilization, including contouring and vegetation; c) elimination of health and safety hazards; d) conservation and preservation of remaining natural resources; and e) the time schedule for the completion of the program. In accordance with this, DNR (Division of Resource Management) has established rules (Chapter 16C-16) elaborating on these requirements. These rules allow that amendments to the program can be made as needed, and that a reclamation report is to be submitted annually for each reclamation site.

7. Geological Investigations:

Section 377.075, F.S., requires that basic geological investigations of the state be undertaken in order to understand the general geologic makeup of Florida. This responsibility is given to the Bureau of Geology in the DNR. The Bureau is involved in the following continuing activities in fulfilling this responsibility: a) investigation of geologic strata; b) laboratory examination of rock samples to determine physical characteristics; c) preparation of catalogue of rock samples, geologic descriptions, and paleontological collections; d) preparation of geologic reports, including descriptions of mineral deposits, geologic hazards and interpretations of the geomorphology, stratigraphy and structure of beds for land use planning, erosional studies, mine planning, water resources and reclamation; and e) the dissemination of geologic data to governmental, industrial and private sectors.

8. State-Owned Lands:

The following laws govern the management of state lands and the maintenance of a public land office: Chapter 253 and 270, F.S., and Sections 285.01, 285.011, 285.03, 285.04, 285.05, 285.11, 285.14, 285.15, 197.306, 197.391, 197.401, 197.406, 197.411, 197.421, 197.426, and 197.431, F.S. The responsibility for these activities falls with the Bureau of State Lands, in the DNR.

The functions of the Bureau include the administration of the acquisition, disposition and exchange of state lands; the leasing of state land for oil, gas and mineral rights, the processing of easements affecting state-owned lands; the issuance of marina licenses; and the administration of other related matters. In addition, the Bureau is to develop a State-Owned Lands Plan concerning the acquisition, management and disposition of state-owned lands.

The public land office functions of the Bureau include the maintenance of land survey plots, field notes, disposition tract books, Spanish land grants and related materials; directing and performing

field examinations and research in various records as they relate to omitted or erroneously surveyed lands; and acting as the liaison with the U.S. Department of the Interior, Bureau of Land Management, which is responsible for the survey of public lands in Florida.

9. Recreation and Parks Program:

The responsibility for acquiring, developing and operating the recreation and parks system of the state is given to the Division of Recreation and Parks of the DNR by Section 592.12, F.S. Currently, the system comprises 116 areas, with a total of 284,068 acres, located throughout the state. These areas consist of 29 state parks, 37 recreation areas, 34 special feature sites, 7 preserves, 6 museums, and 4 ornamental gardens. Of the system's 116 areas, 77 are currently in operation while the 39 remaining are in planning or development phases.

Acquisition of new lands for the Florida Recreation and Parks system are determined by three principal factors: A) need; B) availability of lands (the Division of Recreation and Parks has no eminent domain authority); and C) funding. As noted above, the Land Conservation Act of 1972 authorized a $40 million bond issue, which was subsequently approved by the voters, for the purchase of recreational lands. As of the end of 1975, the Division of Recreation and Parks had expended $39,159,121 of this for the purchase of some 3,385 acres of new recreation lands.

The Recreation and Parks program of the state is a key element in implementing the policies of the land development plan. For example, the state preserves are designed to set aside viable representative samples of some of the natural conditions of the state, and each of the state parks contains a natural attribute of statewide or regional significance.

10. Recreation Development Assistance Program:

This program was established to provide financial assistance to municipalities, counties and other political subdivisions or agencies of the state for acquiring and developing recreation resources. Under present policy of the Executive Board of the DNR, up to 15% of the net revenue of the Land Acquisition Trust Fund can be used for this purpose. The program is administered by the Division of Recreation and Parks.

As of December, 1976, $6,309,595 had been committed for the acquisition and development of 170 recreation projects, ranging from single-purpose facilities, such as fishing piers and artificial reefs to larger, multi-activity parks.

11. State Wilderness System:

The State Wilderness System was established by the State Wilderness System Act (Chapter 258.17, F.S.). The purpose of this program is to establish permanent preserves as State Wilderness Areas which preclude incompatible human activities. The program is directed primarily at publicly owned lands or those private lands for which long-term leases can be negotiated. There are presently 5 wilderness areas in the system comprising some 3,000 acreas; 4 additional areas totaling almost 2,400 acres are, at this writing, being proposed.

12. Florida Scenic and Wild Rivers System:

The Florida Scenic and Wild Rivers System was established by the Executive Board of the DNR in January, 1972. The program was intended to preserve the wilderness qualities of the state's exceptional rivers and streams.

All rivers and streams which are considered to be potential candidates for the system are placed in a study category, and each is examined as to the feasibility of a scenic and wild river designation. Staff recommendations are then formalized and presented to the Executive Board for official designation. If such designation is made, implementation is to be then undertaken by the Division of Recreation and Parks.

Implementation of the program is to consist of three basic measures: a) acquisition; b) local regulatory control of certain property rights along river banks; and c) a management plan to protect the designated rivers' scenic or wild qualities. When the program began, 9 rivers were selected for study and potential inclusion in the system. Studies on three of these--the Hillsborough River, the Wekiva River, and Econfina Creek--are currently being completed for possible designation.

Department of Transportation (DOT)

The Department of Transportation (DOT) administers various state transportation programs pursuant to Chapters 330-340, F.S. The primary missions and responsibilities of the Department are to: A) develop and maintain comprehensive transportation development plans; B) develop programs to foster efficient, economical and safe systems of highways and urban streets, public transportation and air routes, airports and allied facilities; and C) license and regulate the above systems as provided by law. The DOT administers all funding and other transportation programs provided for under federal law.

DOT is composed of five transportation districts which are located in Bartow (District #1), Lake City (District #2), Chipley (District #3), Fort Lauderdale (District #4) and Deland (District #5). These districts are responsible for planning for all modes of transportation in consultation with local governments. District activities are programmed and

controlled for consistency and quality at the state level.

1. Planning and Programming:

The primary responsibilities of the Division of Planning and Programming is to conduct and coordinate studies for the purpose of gathering data concerning transportation systems, their uses, and their environment. Also, included is the analysis and evaluation of data required to develop recommended transportation systems for new construction, rebuilding, improvements and specification of corridor alignment and interchange schematics.

2. Highways:

The Division of Road Operations is responsible for designing, coordinating and supervising the Department's highway construction program as well as developing, coordinating and administering the statewide maintenance program.

3. Mass Transit:

Programs administered by the Division of Mass Transit Operations provide for surface mass transit improvements and aviation improvements. The Division's activities include research and development of advanced surface concepts and systems, as well state support and participation in joint funding of improvements to local and regional surface mass transit systems. The Division also develops and implements multi-year aviation work programs which include development of advanced systems and concepts and state support and participation in joint funding of airport development and improvement.

4. Urban Areas:

Part 450 of the rules and regulations relating to U.S. Code-Title 23-Highways, published in the Federal Register, Vol. 40, Number 181, September 17, 1975, requires the creation of Metropolitan Planning Organizations (MPO's) in urban areas of over 50,000 population. The MPO's will consist of local elected officials who are responsible for transportation planning with their respective areas. Presently, there are 15 urban areas in the state which qualify for designation as MPO's. The MPO's to be designated by the Governor will, where possible, be regional planning agencies. These agencies will function in coordination with the State DOT under memoranda of agreements.

5. Seaports:

The State DOT also has the responsibility for preparing a comprehensive seaports plan for the state. In this regard, the state recently received a grant from the Federal Maritime Administration in the amount of $50,000 to be used toward preparation of a comprehensive statewide seaports study.

6. Outdoor Advertising:

The State of Florida, through the Outdoor Advertisers Act, Chapter 479, F.S., seeks to conform to the standards of the Federal Highway Beautification Act of 1965. Conformance to this act enables the state to continue receiving federal highway funds.

The Outdoor Advertisers Act authorizes DOT to regulate the size, lighting, and spacing of signs in zoned and unzoned commercial and industrial areas. The act further states that the DOT may determine whether land is commercial or industrial if it is not presently zoned. No zoning board is allowed to supercede the authority of the DOT in the regulation of signs.

7. Scenic Highways:

The DOT is presently preparing a plan for a Florida Scenic Highways System, the purpose of which is to identify scenic highways in the state. The DOT has tentatively identified 1,873 scenic highway miles, with another 1,456 miles of scenic access routes being considered for inclusion in the system. This program is intended to provide the public with alternative scenic routes throughout the state, and in so doing, recognizes the fact that highways can be esthetically pleasing in addition to their functional utility.

8. Bikeways:

The Independent Bikeways Project was established by the DOT as a consequence of the 1973 Federal Aid Highway Act. This law enabled a state to spend up to $2 million per year, over a three-year period, for bikeways projects. The program is, in essence, recognition of the fact that bicycles have become a mode of transportation, as well as a form of recreation. As of this writing, DOT has obligated funds for 50 miles of bikeways, while an additional 849 miles is under consideration for future funding.

However, problems have arisen with this program in that funds for bikeways are charged against the overall federal contribution for highway construction. Most likely, this problem cannot be solved without changes in the Federal Highway Act, allowing for specific bikeway construction funds.

The effects of transportation on growth and development of the state are wide-ranged and of major significance. The DOT, by carrying out its responsibilities in accordance with the objectives and policies in the plan, could be extremely effective in guiding proper growth and development of the state.

Department of Agriculture and Consumer Services (DACS)

The general powers and duties of the Department of Agriculture and Consumer Services (DACS) are derived from Chapter 470, F.S. The DACS has two primary functions: a) to aid agricultural interests in the state in producing and marketing products; and b) protect consumers by establishing and promulgating agricultural product standards. The Department undertakes these functions through a number of divisions, including Animal Industry, Chemistry, Dairy Industry, Fruit and Vegetable Inspection, Plant Industry, Standards, Marketing and Forestry. Although in the broadest sense, many of these activities relate to land development, the most directly related activities occur in the Divisions of Marketing and Forestry.

The Division of Marketing is responsible for the collection and analysis of data relating to the supply, demand, price, quality, and movement of the state's agricultural products. The Division's activity which relates most directly to land use is the State Statistical Reporting Service which develops agricultural land use data by county.

The Division of Forestry is charged with the responsibility for forest fire prevention and control, as well as forest and woodlands care and management. The Division provides assistance to owners of woodlands, wood-using industries and other government agencies in the management of forest resources. In cooperation with the U.S. Forest Service, the Division maintains a forest resource file, which is essentially a survey and data file of forested lands in the state. The file is based upon aerial photo interpretation and field observation, and is updated at ten-year intervals.

Game and Fresh Water Fish Commission (GFC)

1. Wildlife Management:

The Game and Fresh Water Fish Commission pursues an objective to increase and sustain the field of wildlife resources in the state. To this end, the Commission's activities include: A) improvement and maintenance of wildlife habitat; B) establishment of food plots; C) wildlife census and population sampling; and D) research in the field of wildlife ecology and management. The wildlife management program receives federal assistance from the Pittman-Robertson Aid

Program, (16 U.S. Code 669) administered by the U.S. Department of Interior. The state has received over $9 million from this program since 1938.

A significant portion of the state's wildlife management efforts are concerned with the administration of the Wildlife Management Areas Program. The GFC has established and manages 46 Wildlife Management Areas comprising some 4.8 million areas of state, federal and private land.

2. Freshwater Fisheries Management:

The GFC's freshwater fisheries management program is comprised of a number of activities including restocking operations in lakes and streams, identification and control of exotic species; conducting of creel censuses, studies of fish populations, lake and stream surveys, lake management and restoration studies, and various applied research programs. The GFC receives financial assistance in support of these activities through the Dingell-Johnson Federal Aid Program, which was created by the Federal Aid in Fish Restoration Act of 1950. This program is administered by the U.S. Department of Interior. Since 1950, Florida has received almost $5 million from this program. Also, as part of its fisheries management program, the GFC manages 56 fish management areas in some 84,000 acres of public waters.

3. Enforcement:

The GFC is involved in a number of law enforcement activities. This includes enforcement of wildlife conservation laws and regulation of wildlife exhibits, in order to minimize losses and declines in resource productivity resulting from illegal exploitation of fish and wildlife. Protection of game animals and game fish is undertaken through licensing, closed seasons and other restrictions.

4. Advisement:

Pursuant to the requirements of The Fish and Wildlife Coordination Act of 1958 (16 U.S. Code, Section 661-666c), the GFC evaluates the effects on fish and wildlife populations of dredge and fill activities which require Corps of Engineers permits. Corps permit issuance is based, in part, upon the effects of dredge and fill on fish and wildlife.

The GFC also provides advice and technical assistance to all governmental agencies and the public on proper game and fish management practices and the effects of development activities on these resources.

Department of Health and Rehabilitative Services (DHRS)

The principal functions of the Department of Health and Rehabilitative Services which affect land development are performed by the Division of Health.

1. Shellfish Regulation:

The Division of Health is involved in control over the growing, harvesting, processing and marketing of shellfish and the picking, packing and marketing of crabmeat. Appraisals of suitability of shellfish waters for harvesting are made in accordance with the National Shellfish Sanitation Program, as well as state standards for acceptable levels of coliform bacteria. Actual field work and analysis is done in cooperation with county health departments.

2. Radiological Health:

The Division of Health, through the Radiological and Occupational Health Section of the Bureau of Preventable Diseases, is currently involved in a continuing study of radiation levels associated with naturally occurring radioactive materials released during mining and milling of phosphate ore. This study includes investigations of radiation levels in schools and homes, ambient radiation levels by aerial surveillance over mining areas and analysis of drinking water. These studies which are being done in the Central Florida land pebble phosphate district are being coordinated with local county health departments and the Environmental Protection Agency.

This section also monitors radiation levels around nuclear power plants, through the Florida Radiation Surveillance Network (FRSN). In 1973, a total of 2,983 samples were analyzed.

3. Vector Control:

The Bureau of Entomology is responsible for mosquito, dog-fly, and other arthropod control programs in the state. Such control programs involve diking, ditching and other drainage and water control measures as well as use of diesel oil and surfactants for larvicidal purposes in wetland areas, aircraft spraying and fogging with pesticides, and ground spraying with pesticides. Many of these activities already affect land development in the state, both in the sense that severe mosquito problems can effectively hamper land development, while abuse of control mechanisms such as ditching, draining and pesticide use can have very deleterious effects on the functioning and well-being of natural systems.

Department of Community Affairs (DCA)

The Department of Community Affairs (DCA), through the Division of Technical Assistance, is involved in a number of activities which affect land development. The Division is responsible, pursuant to Chapter 420, F.S., for the formulation of the State Housing Plan as well as for the supervision of housing standards in the state. The Division also provides technical assistance to local governments in neighborhood redevelopment programs, land use control, fiscal management, and other matters.

DCA is the primary implementing and coordinating agency at the state level for two important federal programs: A) administration of the 701 Comprehensive Planning Assistance Program; and B) the provision of advisory services and technical assistance to state and local agencies regarding the National Flood Insurance Program. These two programs are discussed more fully in the Housing and Urban Development (HUD) section of this document.

Finally, the Rural Land Acquisition and Site Development Assistance Program, also administered by DCA, is described below.

1. Rural Land Acquisition and Site Development Assistance Program:

In recognition of the fact that proportionately, the largest housing problem in the state exists in rural areas, and that the greatest single obstacle to safe and sanitary housing for low and moderate income groups is the high cost of suitable building sites, the Florida Legislature passed, in 1974, The Rural Land Acquisition and Site Development Assistance Act (Chapter 74-168, Laws of Florida). For the purpose of the act, "rural" is defined as a town, village or other place which "has a population consistent with the housing jurisdiction of the Farmers Home Administration of the United States Department of Agriculture."

The act established a revolving "rural land acquisition and site development assistance fund." Eligible borrowers may obtain loans at 3% interest, up to a maximum of $200,000 to acquire, develop and sell building sites to rural residents or developers who will sell homes in rural areas for low and moderate income families. Eligible borrowers include any local government, public housing authority or other public housing entity with a need to develop building sites in their rural areas for low and moderate income people. The act finally stipulates that A) a need for such housing exists; B) federal, state or local assistance funds are or will be available to aid in the construction, maintenance or support of low or moderate income housing on such sites if developed; and C) provisions are made for reasonable security of the loan. In establishing the program, the legislature authorized $2.4 million for the fund's use.

This program should be promoted and further utilized. It provides a means of enhancing proper growth and development in suitable rural upland areas and at the same time relieving some growth pressure from urban areas. As some of Florida's most serious problems center around th-

urbanized coastal zone, the distribution of population to the inland rural areas is desirable.

Department of Commerce (DOC)

Pursuant to Chapter 288, Florida Statutes, the Department of Commerce has the responsibility to promote and increase the economy of the state through tourist attraction and economic development efforts.

1. Economic Development:

The responsibilities of the Division of Economic Development are to promote the beneficial development of the state through the solicitation of desirable non-polluting industry, expansion of existing industry and encouraging international trade. Division activities include: (a) development of economic plans and identification of target industries; (b) improvement of job availability by exploiting industrial categories other than manufacturing; (c) attraction of environmentally compatible firms to the state; (d) advertisement of Florida for industrial development; (e) promotion of international trade for the state.

The Division administers a program to aid communities in improving their capability to attract industry and business. This is accomplished by assisting communities in preparing economic profiles of their specific community, and providing counsel to local officials as to how to negotiate with potential businesses and industries to make their community a desirable location.

A referral service is also provided by the Division. Based upon plant location requirements submitted by prospective industries, the Division refers industry to a list of interested communities which may fulfill these needs.

Through the administration of these programs, the Division of Economic Development can assume a significant role in guiding growth and development of the state by insuring that its efforts to promote industry and business are compatible with the objectives and policies of this Plan.

2. Tourism:

The primary objective of the Division of Tourism is to optimize the number of tourists visiting Florida. The Division's activities include: (a) the operation of highway welcome stations and air welcome stations; (b) conduction of travel shows and special exhibits; (c) placing of tourist advertisements; and (d) promotion of sporting events.

The Division through its promotion of tourism has the capability of affecting proper growth and development of the state by placing more emphasis on the attractiveness of those portions of the state which can best accommodate growth and have fewest development constraints.

Department of State (DOS)

The principal land development function of the Department of State (DOS) is archaeological and historical site protection and preservation. The Florida Archives and History Act (Chapter 267, Florida Statutes) establishes as state policy the protection and preservation of historical sites and properties, buildings, artifacts, treasure trove and objects of antiquity that have scientific or historical value or are of interest to the public. The Division of Archives, History and Records Management of the Florida Department of State, is responsible for administering the act.

In fulfilling this responsibility, the Division cooperates with state agencies, museums, historical societies and other organizations to collect, preserve and exhibit historical and archaeological materials. The Division maintains an operating agreement with the Department of Natural Resources (Division of Recreation and Parks) whereby recommendations are made as to historical and archaeological sites to be considered for acquisition as part of the state parks system. The Division may also designate a significant archaeological site or group of sites as a "state archaeological landmark zone," and by such a designation, regulate and permit any field investigations conducted in these zones.

In addition to these functions, the Division administers three other programs which affect land development:

1. Florida Inventory of Historic Sites:

Under this program, the Division is presently preparing a Comprehensive Statewide Historic Preservation Plan which will identify important historical, archaeological and architectural sites in the state. The plan is to provide a data base for acquisition, preservation, restoration and development of historical and archaeological sites. As of June 30, 1975, 7,049 sites had been identified in the state.

2. State Historic Preservation Grants Program:

This program was begun in 1973 with the designation of the State Preservation Program Review Council. This body is to review all requests for state financial assistance for preservation projects such as site acquisition, research and the preparation of plans. To date, funding for this program has not been provided, although ultimately, it will be provided through a general legislative appropriation. The program is similar to the National Park Service's Historic Preservation Program, however, the emphasis is on sites of local or state significance rather than national significance.

3. Historic Markers Program:

The Historic Markers Program is a joint program of the Division of Archives, History and Records Management and local organizations. Markers are placed at significant historical, archaeological and architectural sites throughout the state, with each marker containing an informative text describing the site. As of June, 1975, 248 markers had been erected in the state.

Department of General Services

Energy Conservation in Buildings Program:

The Florida Energy Conservation in Buildings Act of 1974 (Chapter 255, Florida Statutes) establishes as state policy that buildings constructed and financed by the state will be designed and constructed in a manner which will minimize the consumption of energy used in the operation and maintenance of these buildings. The agency responsible for the implementation of this act is the Department of General Services, Division of Building Construction and Maintenance.

The Division has the responsibility to evaluate the life-cycle cost for all state constructed and financed buildings. It must also promulgate rules and procedures, including energy performance criteria, for conducting life-cycle cost analysis of alternative building designs and develop energy performance indices to evaluate competing designs for efficiency of energy utilization.

Life-cycle cost analysis technique and energy performance criteria developed by the Division could also be used by local governments to perform energy efficiency studies of alternate designs prior to public facility development. In addition, local building codes could be based on energy performance standards as well as prescriptive standards for building materials.

Public Service Commission (PSC)

The PSC is responsible, under numerous chapters of the Florida Statutes, for regulating the rates, services and, to some extent, the safety of privately owned public utilities and scheduled intra-state transportation and airline companies. The PSC has a primary responsibility for insuring that utility firms subject to regulation by the state provide an adequate level of safety and service at fair, non-discriminatory rates.

In addition to rate regulation, under Chapter 366, Florida Statutes, the PSC is responsible for regulating rural electric cooperatives and municipal electric utilities to insure electric power conservation and reliability within a coordinate grid, for operational as well as emergency purposes; and to approve territorial agreements between

electric utilities; and resolve disputes between companies.

Under the Florida Electrical Power Plant Siting Act (Chapter 403, Part II, Florida Statutes), the PSC is responsible for preparing reports and recommendations as to the present and future needs for electrical generation capacity in areas served by proposed power plants. The PSC also serves as a party to power plant siting hearings.

Under provisions of the Water and Sewer System Regulatory Law (Chapter 367, Florida Statutes), counties, by resolution, may transfer their authority to regulate water and sewage rates and services to the PSC. Presently 26 counties in the state have opted to transfer this authority to the state, thus giving the state regulatory power over approximately 644 water and sewer systems.

Department of Education/Institute of Food and Agricultural Sciences (DOE/IFAS)

The principal subcomponent of the Department of Education (DOE) which is felt to have the most immediate impact on land development is the Institute of Food and Agricultural Sciences (IFAS). IFAS is a statewide agricultural research and education system administered by and through the University of Florida. Its programs are authorized by federal, state and local legislation.

IFAS performs three broad functions -- research, education, and extension -- in support of agriculture and related industries throughout Florida. IFAS trains scientists, researchers and others in 19 programs of study affecting virtually every link of the food and fiber chain and all aspects of agricultural business and resource management. Resident instruction is carried on in Gainesville by the College of Agriculture and the School of Forest Resources and Conservation. Undergraduate and graduate programs are offered in agriculture and related fields of endeavor.

Research is conducted at the main station in Gainesville and at 23 research and education centers throughout Florida in the biological, physical and social sciences applicable to agriculture. Technology is being developed at these centers aimed at achieving more productive and more efficient plants and animals, better pesticide and herbicide management programs, more effective use of water, energy and other resources, improved machinery, and more effective management of agricultural production and marketing.

The importance of IFAS to the state land development plan lies principally in IFAS's experience and research capabilities in developing new and imaginative approaches to land use; new crops and animals for utilization of wetlands; adaptation of crops to the state's natural hydrologic cycle and so forth. Such research and development activities are crucial if future land development in the state is to be economically, energetically and environmentally sound.

D. Federal Agencies

U.S. Department of Agriculture (USDA)/Soil Conservation Service (SCS)

The Soil Conservation Service (SCS) was formed in 1937 with the enactment of Public Law 46. It is the technical soil and water conservation agency for the U.S. Department of Agriculture.

The SCS state office is located in Gainesville and is under the direction of the State Conservationist, with a program services staff, administrative staff, budget and finance personnel staff. Technical support specialties include an agronomist, environmental specialist, range conservationist, biologist, plant materials specialist and soils and engineering specialists. Watershed Planning and River Basin Planning staffs and a design unit are also located in the SCS state office.

There are five SCS administrative offices and sixty field offices in the state. The Soil Conservation Service provides technical assistance through Soil and Water Conservation Districts, working together under a formal agreement, or "memorandum of understanding." Applications for assistance in matters of soil and water conservation, watershed management, range and woodland planning, recreational area planning and other programs relating to natural resources are made through the local soil and water conservation district office. There are three basic programs underway within the SCS which have particular importance to land development planning: soil surveys; and resource conservation and development programs; and small watershed planning.

1. Soil Survey Program:

Under the auspices of the National Cooperative Soil Survey Program, the Soil Conservation Service, in cooperation with the University of Florida Agricultural Experiment Station, is conducting detailed soil surveys throughout the state. As of December, 1976, detailed surveys had been completed and published in 16 counties; completed but not published in 5 counties, and are in progress in 12 more counties. Thus, 18 million acres of the total 35 million acres in the state have been or are in the process of being mapped.

Detailed soil surveys are important for planners, developers, farmers, and others who need detailed information on crop productivities, effects on structural implacement, drainage, infiltration rates, water table levels, and so forth. They are considered a critical supporting component of the Land Development Plan.

2. Resource Conservation and Development (RC & D) Program:

The U.S. Department of Agriculture is authorized, through the Food and Agriculture Act of 1962 and other acts, to provide local groups with technical and financial assistance in conserving and developing their natural resources. The Department carries out these functions through Resource Conservation and Development (RC & D) Projects, under the administration of the SCS.

RC & D projects are locally initiated, sponsored and directed. Eligible sponsors for projects may include soil and water conservation districts, counties, municipalities, or local or state agencies. Typically, RC & D projects include more than one county, and in general, are intended to be big enough to permit development of natural resources for "economic improvement and community betterment," but small enough to be under local leadership and control. In terms of financing, some project components are locally financed; in other instances, federal RC & D funds are available for technical help and financial assistance for such projects as flood prevention, erosion and sediment control, agricultural water management, agriculture-related pollutant control and public water-based fish and wildlife and recreation development. RC & D loan funds may be available through the Farmers Home Administration, and cost sharing, through the Rural Environmental Assistance Program, may be available for conservation measures.

There are presently three RC & D projects underway in Florida: Three Rivers (Escambia, Santa Rosa and Okaloosa Counties); West Florida (Bay, Calhoun, Franklin, Gadsden, Gulf, Holmes, Jackson, Jefferson, Leon, Liberty, Wakulla, Walton and Washington Counties); and Suwannee River (Columbia, Lafayette, Hamilton, Madison and Suwannee Counties).

3. Small Watershed Development Programs:

The Watershed Protection and Flood Prevention Act (Pl. 83-566) authorizes the U.S. Department of Agriculture, through the SCS, to give technical and financial help to various local organizations to plan and carry out small watershed projects. Such projects can be for flood prevention, agricultural water management, recreation, municipal and industrial water supply, and fish and wildlife development. To qualify under the provisions of the program, a given project must not contain any single structure within a total capacity of more than 2,500 acre-feet, nor can the total estimated federal contribution to construction costs be greater than $250,000. If either of these figures are exceeded, the project must be approved by Congress.

Small watersheds are defined as comprising 250,000 acres or less. In 1960, the Florida Soil and Water Conservation Needs Inventory Study, completed by the SCS and cooperating state agencies, delineated 228 small watersheds covering approximately 38,000,000 acres. Of this, 162 watersheds covering 26,786,995 acres were considered to be of a type to qualify for Pl. 83-566 assistance. As of March, 1975, 20 small watershed projects covering 1,362,750 acres were under construction or had been completed.

In the past, small watershed projects in Florida have been typically flood control and drainage projects, and have been primarily aimed at helping agricultural interests. However, with appropriate local sponsorship, the small watershed program could be expanded to address many of the concerns of the Land Development Plan.

U.S. Department of Agriculture/Agricultural Stabilization and Conservation Service (ASCS)

The Agricultural Stabilization and Conservation Service (ASCS) is the agency of the U.S. Department of Agriculture that administers specified commodity and related land use programs designed for voluntary production adjustment, resource protection, and price, market, and farm income stabilization. All programs administered by ASCS that deal directly with farmers are carried out through state, county, and community committees, established in accordance with provisions of the Soil Conservation and Domestic Allotment Act of 1925 as amended and Title X of the Agriculture and Consumer Protection Act of 1973 (P.L. 93-86).

1. The Agricultural Conservation Program (ACP):

The Agricultural Conservation Program (ACP) is the principal channel by which the government shares with farmers and ranchers the cost of carrying out soil, water, woodland and wildlife conservation practices on their land to help maintain the productive capacity of American agriculture and to improve the environment. The program consists of a number of specific components: a) permanent vegetative cover; b) tree plantings and timber stand improvement, c) water impoundments, d) strip-cropping, contour plowing, conservation tillage, windbreaks and shelter breaks, e) terrace systems and diversion, f) streambank protection, g) wildlife conservation, h) irrigation systems improvement, i) sediment control, j) animal waste control, k) disposal pits for solid waste, l) controlling noxious weeds and competitive shrubs, m) drainage systems, n) grazing management, and o) temporary cover crops.

2. Rural Environmental Assistance Program:

The Rural Environmental Assistant Program gives project grants to carry out approved soil, water, woodland and wildlife conservation practices as well as agriculture-related water and air pollution abatement.

3. Tree Planting Conservation Grants Program:

The tree planting conservation grants program is a cost-sharing grant to landowners and operators for tree planting and related activities and farm fish ponds and fish farming program which allots grants, loans and technical assistance for construction and operation of farm fish ponds used for commercial fishery enterprises.

U.S. Department of Agriculture/Farmers Home Administration (FmHA)

The Farmers Home Administration (FmHA) of the U.S. Department of Agriculture, was established in 1961 by the Farmers Home Administration Act. The FmHA is essentially a mechanism which channels credit to farmers, rural residents and communities. It helps borrowers gain maximum benefit from loans through counseling and technical assistance. The program is designed to help build the family farm system, to expand business and industry, control or abate pollution, install water and waste disposal systems and other community facilities, provide or improve modest homes and other activities to improve the economic and social base of rural areas. The FmHA has several programs designed to accomplish these goals.

1. Assistance in Community Development:

This program provides: a)loans for modifying, enlarging, restoring and/or merging a water system, a sewer system, and a solid waste disposal system; b) grants for sewer planning which provides cost for technical and professional service; c) new rural town grants for public facilities; d) loans to private developers and loans and grants to public bodies for activities involved in building new communities; e) grants for access streets and roads in rural communities as amenities for industrial and business development; f) loans for gas distribution lines; and g) grants for fire protection equipment service and fire houses.

2. Assistance in Housing:

This program provides: a)plans for homeownership which finance homes and building sites; b) rural rental housing loans for the building, purchasing or repairing apartment style housing and associated activities such as streets, water and waste disposal systems; c) dwelling rehabilitation repair loans which also include providing sanitary waste systems; and d) loans for purchasing mobile homes for rural residents.

3. Assistance in Planning:

Project grants to prepare comprehensive plans for rural development are provided in this program.

4. Assistance in Mine Operations:

The Assistance in Mine Operations program provides a) loans for opening and operation of a mine or other mineral recovery installation in a rural area; b) loans for construction and operation of metals and minerals processing plants in rural areas; and c) grants for pollution control in minerals processing.

5. Assistance in Transportation:

This program includes a) loans for acquisition of land, construction, or operation of transportation systems for rural territory; b) advice, counseling, and limited funds for experimental projects that will provide mass transit systems for rural people.

6. Assistance in Business and Industry:

This program makes available a) grants and loans for business and industrial encouragement; b) loans for forest production and marketing; c) loans for fishing boat repair and servicing enterprises; d) loans to establish, improve, develop and operate a commercial farm fish processing plant; e) loans to formulate cooperatives; f) loans for young rural residents to engage in small business enterprises; g) project grants for industrial development in rural areas; h) loans and grants for construction, equipping, and preparation of airport terminal warehousing and materials handling facilities to serve rural industry and business.

7. Assistance to Farms:

This program provides the bulk of the FmHA loans in the form of A) loans for operation of farms 1) to buy cattle, hogs, other livestock/poultry/tractors, plows, sprayers, other farm equipment/food freezers, other home equipment; 2) make minor improvements to buildings and land; 3) develop water supply systems for home use, livestock and irrigation; 4) for farm operating expenses such as buying feed, seed, tractor fuel, hiring labor, etc.; 5) to pay for food, clothing, medical care and personal insurance; 6) to buy equipment to pay operating expenses for producing and harvesting trees and other forestry products; 7) to finance non-farm and recreational enterprises; B) loans to aid in farm ownership 1) to buy or enlarge farms; 2) construct, improve or repair farm homes and farm service buildings; 3) to drill wells; 4) to improve water supply systems for home use, livestock, and irrigation, and to refinance debts; 5) to develop and improve farm land; 6) to clear and level land; 7) establish and improve farm forests; 8) provide drainage systems; 9) carry out basic land treatment practices such as liming; C) loans for non-farm enterprises to 1) provide essential service buildings, land, and facilities; 2) buy, rent, or repair necessary tools, equipment, facilities, and furnishings; 3) pay operating expenses; 4) purchase inventories and supplies; 5) pay costs of organizing; 6) develop water and waste disposal systems essential to the enterprise; 7) construct roads, ditches, or power, gas, and water lines on land where easements or rights-of-way are obtained.

One of the principal concerns of the State Land Development Plan is to identify areas of major development potential. In that such areas will most likely be rural and, to some extent economically depressed, the FmHA Programs could be an important instrument in providing loans for land development in these areas.

U.S. Department of Agriculture/U.S. Forest Service

1. Cooperative Forest Management:

The Cooperative Forest Management Act (Pl. 92-288, 1b USC 568) authorizes the U.S. Secretary of Agriculture to provide financial and technical assistance to states for the protection and enhancement of non-federal forest and certain non-forested watershed lands. Financial assistance is provided to state forestry and other state agencies, while nonfinancial assistance is available for local governments and organizations, private and woodland owners, and forest industries.

The program provides a wide range of assistance, including: forest fire prevention and control; forest insect and disease control; timber growing and harvesting; timber stand improvement and tree planting; utilization and marketing of forest products; and multiple use planning of forest land resources.

The Cooperative Forest Management Program provides a wide range of financial and technical assistance which, through proper coordination at the state level, can be an important implementation mechanism of the Land Development Plan.

2. National Forest Management:

The National Forest system of the United States is administered by the U.S. Forest Service, under the principle of multiple use and sustained yield. The Multiple Use-Sustained Yield Act of 1960 declares that National Forests be administered for outdoor recreation, range, timber, watershed, wildlife and fish purposes.

In Florida the U.S. Forest Service administers three National Forests: the Apalachicola (557,446 acres); the Osceola (157,231 acres); and the Ocala (336,037 acres). These areas contain some of Florida's most pristine lands, as well as important timber and mineral resources: oil and gas exploration is now underway in the Apalachicola; large reserves of phosphate rock have been discovered in the Osceola. The forests are also important recreation resources - the Ocala for example is one of the most heavily used National Forests in the U. S. with over two million visitor days of recreation per year. Within the three forests there are presently 42 developed recreation sites.

Clearly, there are many diverse and often conflicting demands placed on the National Forests in the state. Although the National Forests are federal lands, the state has many indirect ways of affecting their use. It is intended that the Land Development Plan help coordinate the use of these valuable resources between the state and the federal government.

U. S. Department of Commerce (DOC)

The National Oceanographic and Atmospheric Administration (NOAA) in the U. S. Department of Commerce is responsible on the national level for implementation and administration of the Coastal Zone Management Act of 1972, (PL 92-583). This program is administered at the State level by the Bureau of Coastal Zone Planning in the Department of Natural Resources. The program is described on page 88 of this plan.

U.S. Department of Interior (USDI)/U.S. Geological Survey

1. Topographic Map Preparation:

One of the principal activities of the USGS, and one which forms the starting point of virtually all land-use planning, is the preparation and maintenance of topographic maps. These maps show both the natural and man-made features of the land surface, as well as elevations. The maps are continually revised, using photo revision and other techniques. Topographic maps are basic requirements for many kinds of studies, such as comparing and selecting dam sites; planning and installing communication and highway systems; and developing programs for flood control, soil conservation and reforestation.

2. Geologic Research and Investigations:

The USGS conducts a broad program of field and laboratory research on the geology of the United States. Some of these investigations are undertaken on behalf of other federal agencies, while others are carried out in financial cooperation with states, counties and municipalities. The USGS geologic research projects fall into several categories including: environmental geology, mineral and energy resources, geochemistry and geophysics, and marine geology.

3. Water Resources Investigations:

Through the Water Resources Division, the USGS is responsible for appraising the quantity and quality of the water resources of the country. The USGS monitors and evaluates surface and ground water resources through a vast array of water stations and observation wells. Nationwide, the USGS maintains 18,000 stream-gauging stations, 28,500 ground water observation wells, and 5,000 water quality stations.

During fiscal year 1975-76, the USGS has been engaged in over 120 water resource investigation projects in Florida, in cooperation with 85 federal, state and local agencies. These projects cover a wide range of topics: flood insurance studies for HUD, bridge-site studies, aquifer analog models, urban hydrology, canal infiltration, deep well injection studies, and so forth. The great diversity of the USGS's water investigations in Florida is, in large part, a measure of the flexibility and capabilities of this organization, and its importance to land development in the state.

U.S. Department of Interior/U.S. Fish and Wildlife Service

1. Wildlife Refuge Management:

The U.S. Fish and Wildlife Service manages 22 National Wildlife Refuge Areas in Florida, comprising some 438,000 acres. These areas

are intended primarily for limited recreation use such as nature study, but under the National Wildlife Refuge Act, up to 40% of a refuge can be set aside for hunting.

2. Fish and Wildlife Coordination Program:

The Fish and Wildlife Coordination Act of 1958 (16 U.S. Code, Sections 661-666C) gives the Fish and Wildlife Service review responsibilities in regards to the U.S. Army Corps of Engineers Environmental Regulatory program (see discussion of this program in the Corps of Engineers section). The issuance of permits for dredge and fill, spoil disposal, and other related works in the navigable waters of the U.S. by the Corps is reviewed by the Fish and Wildlife Service (as well as other federal and state agencies) to assess what impact such activities will have on fish and wildlife in the affected area.

3. Endangered Species Program:

The Endangered Species Act of 1973 (Title 16, U.S. Code, Section 668aa-668cc-6) was enacted for the purpose of providing a means of protecting the habitat of endangered and threatened species of plants and animals and the conservation of the species themselves in the United States. Endangered species are defined as any species in danger of extinction throughout all or a significant portion of its range; a threatened species, or any species likely to become endangered in the foreseeable future.

The Act requires the Fish and Wildlife Service to prepare a list of endangered or threatened species and establish and implement a conservation program. It further authorizes this agency to acquire land to protect the habitat of endangered and threatened species with funds from the Land and Water Conservation Fund. A recovery program for a particular species must precede the acquisition of land for the protection of that species. The Department may enter into cooperative agreements with states, other federal agencies, and by way of the President, foreign countries to carry out the Act. Finally, the Act makes it unlawful to import any endangered animal or plant species into or export from the United States.

The Game and Fresh Water Fish Commission participates with the U.S. Fish and Wildlife Service in this program. However, the full potential of the program has not been achieved, particularly the land acquisition and species recovery programs.

U.S. Department of Interior/Bureau of Outdoor Recreation (BOR)

1. Land and Water Conservation Fund:

The Land and Water Conservation Fund, administered by the Bureau of Outdoor Recreation of the USDI, was established to make federal funds available to states on a fifty-fifty matching basis for outdoor recreation projects. These funds are administered at the state level by the Florida DNR, Division of Recreation and Parks. Presently, the state gives one-half of its annual apportionment from the fund to local governments to assist them in the development of outdoor recreation projects, while the balance is used for acquisition and development of state level outdoor recreation projects. As of December 1976, Florida expended $38,622.041 in Fund money, matched by an equal amount from state and local sources. The Bureau of Outdoor Recreation also administers the federal share of the Land and Water Conservation Fund, which is divided among the National Park Service, National Forest Service and the Fish and Wildlife Service, for land acquisition.

2. National Wild and Scenic Rivers Program:

The National Wild and Scenic Rivers System was established by the National Wild and Scenic Rivers Act of 1968 (16 U.S. Code 1271) for the purpose of preserving wild or scenic rivers and their immediate environments which possess "outstandingly remarkable scenic, cultural or other similar values" for "the benefit and enjoyment of present and future generations."

In Florida, the Bureau of Outdoor Recreation has recommended the inclusion of the Suwannee River in the system, and recommended that suitable actions be taken by the state to preserve the scenic river corridor. The Suwannee River Water Management District has been charged with the responsibility of coordinating local and state action in this regard. As of March 1976, no formal state action had been taken toward designation of the river.

U.S. Department of Interior/Bureau of Land Management (BLM)

The Bureau of Land Management is the primary federal agency responsible for the custody and use of federal lands. The Bureau's principal responsibilities are as follows: a) leasing of public lands for use as public airports; b) leasing, permitting and granting of easements over public lands to states, municipalities and counties for constructing and maintaining public buildings and other public works; c) leasing of public lands for recreation, historical monuments, and other public purposes; d) granting of licenses, permits or easements on public lands for right-of way purposes; e) consolidation of land holdings of the U.S. by sale, exchange or donation; f) leasing of federally owned mineral deposits on public lands; h) permitting of free use of certain forest products (generally timber) by certain local residents, government agencies, nonprofit organizations, and mining claimants; i) sale of forest products

(primarily marketable saw timber) and j) sale of mineral material.

U.S. Department of Interior/Bureau of Mines (BOM)

The principal concern of the Bureau of Mines is the conservation, development and efficient utilization of minerals and fossil fuels essential to the nation's economy. To that end, the Bureau conducts a wide range of research, disseminates information and provides technical advice on mineral and energy resources, explosives, and mineral technology and economics. The Bureau also seeks to minimize environmental problems arising from mining such as air and water pollution, subsidence, and the disposal of mine wastes and mineral scrap. Finally, the Bureau is responsible for the protection of the health and safety of persons working in the mining industry.

U.S. Department of Interior/National Park Service

1. Park Administration:

The National Park Service administers 10 areas in Florida comprising 1.6 million acres. Included in these are Gulf Islands National Seashore, Canaveral National Seashore and Everglades National Park. The Big Cypress National Preserve, comprising some 570,000 acres, is also administered by the Park Service. In all of these areas, the Park Service seeks to preserve examples of the state's original domain as well as provide a wide range of outdoor recreation activities.

2. National Register of Historic Places:

Public Law 89-665, the National Historic Preservation Act of 1966 (16 U.S. Code 470) gives the Park Service authority to expand and maintain a National Register of Historic Places to include significant properties of historical or archaeological interest as well as districts, sites, buildings, structures and objects of national, regional or local interest. As of December 1976, 257 Florida historic sites have been included in the National Register. Sites included in the National Register receive some statutory protection and are eligible for grants-in-aid for acquisition and development, on a fifty-fifty matching basis. As of September 1976, twenty-four such projects, at a total cost of $334,872, have been completed in Florida .

3. Natural Landmarks Program:

The Natural Landmarks Program was established to identify and recognize nationally significant ecological and geological natural areas, which taken as a whole, are representative of the nation's natural heritage. As of December, 1975, Florida had sixteen registered natural landmark sites.

Housing and Urban Development (HUD)

1. National Flood Insurance Program:

The National Flood Insurance Program was established by the National Flood Insurance Act of 1968. Its purpose was to provide insurance coverage for property owners in flood prone areas who could not otherwise get coverage through the private insurance industry. In return, state and local governments are required to adopt certain minimum land use regulations in flood prone areas to avoid future flood damage. The program was greatly expanded in 1973 with the passage of the Flood Disaster Protection Act. This act extends the limits of flood insurance coverage; identifies flood prone areas in the country; requires state or local community participation in the program as a condition of future federal assistance; and requires purchase of national flood insurance by property owners who are being assisted by federal programs, or by federally supervised, regulated or insured agencies, in the acquisition or improvement of land or facilities located, or to be located, in flood areas. The program is administered by the Department of Housing and Urban Development at the federal level and the Department of Community Affairs at the state level.

Extensive land use and control measures for flood prone areas for localities participating in the program are required. Building permits are required for all proposed construction or other improvements in the flood plain and review of these permits is required to assure that materials, utility equipment and construction methods are resistant to flood damage. Review of subdivision proposals and other proposed new developments is also required to assure that such developments and their associated public facilities are consistent with the minimalization of flood damage. New or replacement water supply, sanitary, and onsite waste disposal systems are to be designed to prevent flood infiltration or discharge into flood waters. Most significantly, laws and ordinances concerning land use and control designed to minimize flood damage are to take precedence over any conflicting laws, ordinances, or codes.

More specifically, when HUD has identified the 100-year flood plain in a given area, new construction or substantial improvements to structures are required to have the lowest floor elevated to or above the level of the 100-year flood, and attendant utility and sanitary facilities are to be flood-proofed up to the level of the 100-year flood. In riverine flood plains, the program requires designation of the 100-year flood way, and prohibits expansion of non-conforming uses in the flood way and fill or encroachments that would impair the ability of the flood way to discharge 100-year flood waters. In coastal flood plain areas, the program requires that no land below the level of the 100-year flood be developed unless it is located landward of the reach of the mean high tide, is adequately elevated or anchored, or is so designed such that the space below the lowest floor is free of obstructions to minimize the impact of abnormally high tides or wind driven water.

Finally, the program describes land development goals which state and local governments are encouraged to pursue in regards to flood protection. These include: diverting unwarranted and unwise develop-

ment away from flood-prone areas; deterring unnecessary or improper installation of public utilities and facilities in flood-prone areas; and reserving flood-prone areas for open space purposes.

There were 312 communities in the program in Florida as of October 31, 1975.

2. Housing and Community Development Comprehensive Planning Grants Program:

The Comprehensive Planning Grants Program was established by Section 701 of the Housing Act of 1954 (PL 83-560). The initial purpose of the program was to provide for urban planning in small communities lacking adequate planning resources. However, through a series of legislative amendments and administrative actions undertaken since the passage of the 1954 law, the 701 program has become the principal federal grant program for most planning agencies. Eligibility for funding of communities has been expanded from the original limit of population size of 25,000 or less to include communities of all sizes. In addition, counties, metropolitan areas, regional planning agencies, states, and specialized agencies such as transportation planning groups are now eligible for assistance.

The broadening of agency coverage in the 701 program has been paralleled by an expanded delineation of eligible planning activities: the initial emphasis of the program was on physical planning--inventories of land use, population and economic base analysis, plans for land use, preparation of zoning ordinances and subdivision regulations and so forth. However, in addition to these activities, management programs such as identification of problems, formulation of policies and programs, implementation and evaluation of effectiveness, are now included. Moreover, certain requirements have been incorporated into the program: the creation of a housing element, capital improvement programming and land use planning. The grant formula in the 701 program is two-thirds federal share except in those "redevelopment areas" designated under the Public Works and Economic Development Act of 1965, where the federal share is increased to three-fourths. The 701 program is administered by the Department of Community Affairs and guidelines and standards for land development are included in the administration of the program.

3. Community Development Block Grants:

The Community Development Program of block grants and loan guarantees was established by the Housing and Community Development Act of 1974 (Pl. 93-383). This act consolidated the following programs: a) urban renewal (and neighborhood development programs) under Title I of the Housing Act of 1949; b) model cities under Title I of the Demonstration Cities and Metropolitan Development Act of 1966; c) water and sewer facilities under section 702 of the Housing and Urban Development Act of 1965; d) neighborhood facilities under section 703 of the Housing and Urban Development Act of 1965; e) public facilities loans under Title II of the Housing Act of 1961; and f) rehabilitation loans under section 312 of the Housing Act of 1964. The program is adminis-

tered by the Department of Housing and Urban Development (HUD).

The primary objective of the program is the development of viable urban communities including decent housing, a suitable living environment and expanded economic opportunities. More specifically the program seeks to bring about: the elimination of slums and blight; the elimination of conditions which are detrimental to health, safety and public welfare; conservation and expansion of the nation's housing stock; the expansion and improvement of community services; the reduction of the isolation of income groups within communities; a more rational utilization of land and other natural resources; and the restoration and preservation of properties of special value for historic, architectural or aesthetic reasons.

During fiscal year 1975, there were 83 Florida municipality and county recipients of Community Development Block Grants, totalling $64,679,000. A great number of these grants were for projects which specifically impact on land development, such as street improvements, rehabilitation of housing, parks and recreation, neighborhood facilities, drainage, land for housing, water and sewer, urban renewal transition, relocation, model cities transition, demolition, solid waste, historic preservation and downtown renewal. Clearly, the Community Development Block Grant program is an important aspect of land development in Florida and should be considered a key element in the implementation of many of the policies in the State Land Development Plan, particularly those relating to urban land development and redevelopment.

U. S. Army Corps of Engineers

1. Environmental Regulatory Program:

One of the principal activities of the Army Corps of Engineers which affects land development is its environmental regulatory program. Four federal laws form the basis of this program: the Rivers and Harbors Act of 1889 (ee U.S. Code, Sec. 401, 404, 406-417); Federal Water Pollution Control Act (33 U.S. Code, Sec. 1141 et. seq.); the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S. Code, Sec. 1401 et. seq.); and the Fish and Wildlife Coordination Act of 1958 (16 U.S. Code, Sec. 661-666C). Under these four laws, the Corps has regulatory authority over all navigable waters of the U.S. from mean high water to the outer limits of the Continental Shelf. Moreover, the Corps has regulatory authority over those lands underlying mean high water in tidal areas and ordinary high water in navigable, non-tidal waters.

The Corps regulatory program consists primarily of regulating and permitting fill and excavation in, or altering the course, condition or capacity of, navigable waters. In practical terms, this means the regulation and issuing of permits for various construction projects such as

pilings, docks and marinas; the dredging of canals; the disposal of spoil material into specified sites; and the transportation and disposition of spoil in the Ocean or the Gulf. In considering applications for permits, the Corps considers all relevant factors, including conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife, flood damage prevention, land use classification, navigation, recreation, water supply and water quality. The Corps coordinates applications with and considers review comments by interested state agencies, primarily the Department of Environmental Regulation, Department of Natural Resources, and the Game and Fresh Water Fish Commission, and federal agencies, including the Departments of the Interior and Commerce, the Environmental Protection Agency, and the Coast Guard.

On July 25, 1975, the Corps began phase one of a three-phase program which will greatly broaden its jurisdiction in regulating the disposal of dredged or fill material. Phase one extends the Corps permit jurisdiction to include navigable waters and adjacent wetlands. Phase two became effective on July 1, 1976, and extended permitting jurisdiction to primary tributaries, natural lakes over 5 acres in size and adjacent wetlands. Phase III becomes effective on July 1, 1977 and extends permitting jurisdiction to other waters of the U.S. up to the breakwaters of streams, with a flow of 5 cubic feet per second, with exceptions.

The wide reaching jurisdiction of the Corps regulatory program offers federal and state government an effective mechanism for implementing several aspects of the State Land Development Plan. This program can be especially useful to the State in assuring compliance with several of the wetland and submerged lands, water resources, amenities and various other land resources policies.

2. Navigation:

The commerce clause of the U.S. Constitution and subsequent decisions by the Supreme Court have led to the position that the Federal Government's obligation to regulate navigation and commerce also includes the right to make necessary improvements. To this end, the Corps is responsible for: construction, maintenance and operation of Federal river and harbor projects; granting permits for structures other than bridges (U.S. Coast Guard has the responsibility for issuance of bridge permits) over and in navigable waters; establishing regulations for the use of navigable water; and the removal of wrecks and other obstructions to navigation, including snagging and clearing of navigable waterways.

3. Flood Control and Flood Plain Information:

The Flood Control works program of the Corps is intended to regulate flood flows and thereby prevent flood damage. Additionally, the Flood Control Act of 1944 declared that "flood control" can also include

major drainage of land. Flood control works usually consist of reservoirs, local protection works, or a combination of the two. Upon completion, local protection works and small reservoirs of localized effect are turned over to non-Federal authorities for maintenance.

The Flood Control Act of 1960 authorizes the Chief of Engineers of the Corps to provide flood plain information to states and local governments. The Corps work in this effort involves surveying and mapping of flood plain areas, hydrology and frequency studies for establishing flood damage potential, flood heights, and the extent of inundation of areas involved. This information is used by local governments in establishing right-of-way lines, stream clearance lines, and land use regulations.

It should be noted that the Corps approach to flood control is not tied exclusively to structural measures. Pursuant to PL-93-251, The Corps is required to give consideration to nonstructural alternatives to permit or reduce flood damages, such as acquisition of flood plains, relocation of people, and other such measures.

4. Beach Erosion Control:

The Corps of Engineers, through its beach erosion control activities, works with states and local governments in the restoration of eroded shores and their subsequent preservation. A plan for protection of a non-federal beach is developed jointly by the Corps and an appropriate state or local government, with the Corps bearing the cost of the study. The plan is then reviewed by the Board of Engineers of Rivers and Harbors and the Chief of Engineers. The federal contribution towards erosion and restoration activities for publicly owned shores and publicly owned or used beaches is limited by law to one-half of the construction cost except for special circumstances, such as 70 percent funding for eligible public parks.

5. Urban Studies:

The Urban Studies program allows the Corps to assist urban areas in the development of water resource management plans. Such plans are to be in conformance with comprehensive urban development plans and goals for the region under study, as well as applicable state and federal requirements.

Environmental Protection Agency (EPA)

The Environmental Protection Agency (EPA) is responsible on the national level for the implementation of two extremely important laws which affect land development: PL 92-500, or The Federal Water Pollu-

tion Control Act and Amendments of 1972 (Title 33 U.S. Code, Section 1251 et. seq.), and the Clean Act and Amendments of 1970 (42 U.S. Code, Section 1857 et. seq.). The Department of Environmental Regulation (DER) is the implementing agency at the state level for these laws, and thus their impact on land development is discussed more thoroughly in that section.

In addition to its responsibilities under these laws, the EPA is also a principal focus of research and development activity and funding for various pollution abatement projects. Such projects include water treatment facility grants, funding for experimental solid waste recovery systems, air pollution technology and so forth.

Perhaps the most potentially important EPA program in regard to land development is the recently begun Section 208, Areawide Waste Treatment Management Planning Program, Since DER is the responsible state agency for the coordination and development of the Florida program, 208 is discussed in some detail in that section.

III. RECOMMENDATIONS

1. State agencies should take specific steps to insure that all state plans are coordinated with local levels of government and with other state plans.

2. The state should make available technical assistance to local government in the implementation of the Local Government Comprehensive Planning Act of 1975 (Chapter 163.3161-163.3211, Florida Statutes).

3. The Division of State Planning serving as the state/federal liaison agency and state operational agencies should jointly and individually work toward achieving federal agency acceptance and compliance with this plan, particularly in the allocation of funds for land development.

4. The Division of State Planning should coordinate a data compatibility program which clearly identifies criteria for data collection and analysis for land and water resources.

5. The Division of State Planning should upgrade, expand and maintain a directory of data and data sources in order to facilitate the flow of basic demographic, physical, and economic data and projections among public and private agencies concerned with development in the state.

6. The state should analyze the cumulative effect of land development regulations at the federal, state and local levels of government and continue to seek ways to simplify the regulatory processes and reduce the long time periods required to complete the various regulatory functions.

7. The Department of Transportation and the Department of Environmental Regulation should take the lead in developing proposed legislation requiring port authorities to prepare long-range comprehensive port plans and provide them the authority to regulate activities in the ports.

   With few exceptions, the seaports in the state are without long-range comprehensive plans or a central planning and regulatory body. This has resulted in serious problems in many of the state's ports.

8. The Legislature should continue to support the preparation of detailed soil surveys for all counties in the state.

9. The Department of Natural Resources should develop proposed legislation requiring mandatory reclamation of all surface mining sites. Such legislation should require a plan for use of the land upon reclamation, based upon state and local governmental needs.

10. The Department of Natural Resources should undertake the preparation of a "Mineral Atlas" to contain data concerning all potentially important minerals in the state.

11. The Departments of Natural Resources and Environmental Regulation, in cooperation with water management districts and local governments, should operate the statewide well surveillance and plugging program.

12. The Department of Environmental Regulation should take the lead in establishing a water classification for pristine or primitive and recreational waters.

13. The Department of Environmental Regulation should study the feasibility of an expanded air pollutant rule, to include pollutants not presently covered, such as air-borne carcinogens, and strengthening existing rules where needed, such as with ambient fluoride concentrations.

14. All water management districts should cooperate with regional planning agencies in the Development of Regional Impact (DRI) Process.

15. The Department of Environmental Regulation in cooperation with water management districts which border other states should seek to enter agreements with these states to designate mutually acceptable water quality and quantity standards for interstate waters and establish strategies, plans, and criteria procedures for the resolution of problems.

16. The Departments of Natural Resources and Environmental Regulation in cooperation with water management districts and local governments should increase efforts in the study of the hydrological characteristics of the state with emphasis on freshwater supplies.

17. The Department of Environmental Regulation should seek to increase the level of research into non-structural alternatives to wastewater treatment, with emphasis on the use of natural systems as a potential means of treating wastewater.

18. The Departments of Environmental Regulation and Natural Resources should seek to increase the level of long-term environmental baseline studies of offshore oil and exploration activities and deepwater port sites.

19. The Game and Fresh Water Fish Commission should seek to increase the effectiveness of the Endangered Species Program.

20. The Department of Natural Resources should study the feasibility of a statewide prohibitive off-road vehicle law for beaches and dunes sensitive to destruction.

21. The Department of Transportation should prepare proposed amendments to the Outdoor Advertisers Act (Chapter 479, Florida Statutes) to more stringently control billboards and signs along state highways.

22. The Department of Transportation should encourage the U. S. Department of Transportation to develop a separate funding program for bicycle projects in order to eliminate competition for the same funds by highway projects and bicycle projects.

23. The Division of State Planning should initiate action aimed at requiring that energy utilization be considered in Development of Regional Impact (DRI's) and Environmental Impact Statements (EIS's).

24. The Department of Environmental Regulation (DER) should study the feasibility of a statewide sediment and erosion control law.

25. The Institute of Food and Agricultural Sciences (IFAS) should increase research in the nature of wetlands soils in general and tidal estuaries and salt marshes in particular.

26. The Legislature should undertake the necessary studies and analysis to (1) determine at what point land use restrictions and regulations should be considered a taking of private property or limit its use to the extent that financial or other relief should be provided; and (2) identify methods of reducing or eliminating "windfall" profits resulting from governmental land use decisions and projects. Such studies should be comprehensive, balanced and objective and should make recommendations on all alternatives.

27. The Department of Environmental Regulation should be funded to conduct research to formulate current, reliable baseline data as a basis for environmental regulation.

28. The Department of Environmental Regulation should develop uniform, comprehensive criteria for defining wetlands, based on hydrologic conditions, vegetation, soil types and other valid indicators, which will be used in administering planning and regulatory programs.

29. The Department of Natural Resources should complete and maintain the state-owned lands inventory.

30. The Department of Natural Resources should promulgate and adopt substantive land management criteria for the management of aquatic preserves.

31. The State should evaluate the Environmentally Endangered Lands Program, including previous accomplishments, in order to determine the best use of remaining funds for the program and to determine whether there is a need for additional funding of the program.

32. The Division of State Planning should continue to develop a land-based information system (including land use and land ownership data) in the most cost-effective manner possible. This system should use, to the extent practicable, existing data in the Division of State Planning and other agencies at all levels of government.

    The Division of State Planning's efforts include a contract with the United States Geological Survey to map land use and federal and state land ownership on a statewide basis (scale 1 inch = 2 miles) and a contract with the Florida Resources and Environmental Analysis Center, to map publicly owned land (federal, state and local). These efforts should be maintained and expanded to the extent that such information is needed by the state and feasible to undertake.

33. The Department of Community Affairs should explore the possibilities for coordinating state and federal assistance to new communities established under the New Communities Act of 1975.

34. The Department of Environmental Regulation and the Department of Administration should cooperate to develop a mechanism whereby the state regulatory and approval processes can be expedited for those developments which are shown to be well planned and consistent with state policies and requirements. Such a mechanism would provide incentives for sound, well-planned developments.

35. The Department of Natural Resources should develop a consolidated statewide marine resources atlas utilizing the available information to describe qualitative, quantitative and habitat information on the important marine resources of significance to the state.

IV. IMPLEMENTATION MATRIX

Code

A = Advise, Technical Assistance; Review

I = Incentive or Inducement

R = Regulate

D = Direct Action

Agency Abbreviations

Sub-State Districts

RPA	Regional Planning Agency
WMD	Water Management District
SWCD	Soil and Water Conservation District

State Agencies

DOA	Department of Administration/Division of State Planning
DER	Department of Environmental Regulation
DNR	Department of Natural Resources
DOT	Department of Transportation
DACS	Department of Agriculture and Consumer Services
GFC	Game and Fresh Water Fish Commission
HRS	Department of Health and Rehabilitative Services
DCA	Department of Community Affairs
DOC	Department of Commerce
DOS	Department of State/Division of Archives, History and Records Mgt.
DGS	Department of General Services
PSC	Public Service Commission
DOE	Department of Education/Institute of Food and Agricultural Sciences

Federal Agencies

USDA	U.S. Department of Agriculture
USDI	U.S. Department of Interior
HUD	U.S. Department of Housing and Urban Development
EPA	U.S. Environmental Protection Agency
Corps of Eng.	U.S. Army Corps of Engineers

Recommendations

The letters in the Recommendations Column refer to the Recommendation Section of the Plan, pages 125 through 128.

STATE LAND DEVELOPMENT PLAN
IMPLEMENTATION MATRIX

POLICIES / IMPLEMENTING AGENCIES	LOCAL GOVERNMENT	SUB-STATE DISTRICTS			STATE AGENCIES													FEDERAL AGENCIES						RECOMMENDATIONS
		RPA	WMD	SWCD	DOA	DER	DNR	DOT	DACS	GFC	HRS	DCA	DOC	DOS	DGS	PSC	DBR	USDA	USDI	HUD	EPA	CORPS OF ENG.	USDOC	
AIR																								
1. Insure that the type, location, design and density of development is consistent with the maintenance of clean air.	R	A			A	R		D					I								R			
2. Locate and design transportation systems to minimize air quality degradation.	R D	A				R		D													R			
3. Encourage the location of power plants in areas where meteorological conditions will disperse and transport pollutants away from populated areas and avoid accumulations of pollutants.	R D	A			A	R										A					R		A	
4. Regulate and coordinate forest and agricultural burning to avoid heavy air pollutant loads.	R					A			R D									A D						
5. Seek alternatives to solid waste incineration.	D					I D															I D			
6. Require dust control measures for construction, mining and other activities where traffic by heavy vehicles results in significant air pollution.	R					R		A										A						
7. Seek to minimize ambient fluoride concentrations resulting from phosphate processing operations.						R													A		I R			13

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IMPLEMENTING AGENCIES / POLICIES			SUB-STATE DISTRICTS			STATE AGENCIES												FEDERAL AGENCIES						RECOMMENDATIONS
		LOCAL GOVERNMENT	RPA	WMD	SWCD	DOA	DER	DNR	DOT	DACS	GFC	HRS	DCA	DOC	DOS	DGS	PSC	DBR	USDA	USDI	HUD	EPA	CORPS OF ENG.	USDOC	
	8. Discourage aerial dissemination of pesticides and other toxic substances when atmospheric transport of these substances may result in hazards to natural systems or people.	D										D												
		R					R			A									D			R			
UPLANDS	1. Plan for and encourage new land development and economic and population growth in suitable upland areas, rather than in areas with resource limitations and constraints, such as certain areas in the coastal zone and wetland areas.	R												I										A	
		D	A			A		A						A											33
	2. Guide and coordinate development in upland areas to insure compatibility with resource constraints and opportunities.	R				A	A	A						I								A	A	A	
		D	A	A		D	R	R		A	A		A	A	A		A		A	A	A	R	R		33
	3. Plan for and encourage structural development in upland areas to minimize losses of prime and unique agricultural lands, important mineral resources, rare natural features, and important aquifer recharge areas.	R				A	A	A						I								A	A	A	
		D	A	A		D	R	R	A	A	A		A	A			A		A	A	A	R	R		
	4. Guide growth and development to enhance the well-being of residents in socially and economically depressed upland areas.	I				A						A		I							I				
		D	A										A	A					I						
WETLANDS & SUBMERGED LANDS																									
	1. Encourage the development and use of wetlands and submerged lands only for purposes which are compatible with their natural values and functions.	I		D	A														A		I	A	R	A	28
		R	A	R	D		R	A			A								I	A	R	R	D		35
	2. Encourage the use of wetlands commensurate with their natural functions and capabilities as a substitute for or supplement to technology and structures.	I		A	A		A												A			A	A	A	
		D	A	D	D		I	A			A								I	A		I	I		

STATE LAND DEVELOPMENT PLAN
IMPLEMENTATION MATRIX

POLICIES \ IMPLEMENTING AGENCIES	LOCAL GOVERNMENT	SUB-STATE DISTRICTS			STATE AGENCIES												FEDERAL AGENCIES					RECOMMENDATIONS	
		RPA	WMD	SWCD	DOA	DER	DNR	DOT	DACS	GFC	HRS	DCA	DOC	DOS	DGS	PSC	DBR	USDA	USDI	HUD	EPA	CORPS OF ENG.	USDOC	
3. Encourage the reestablishment of wetlands in previously drained areas, where feasible.	D I	A	A D	A D	A	A	A			A								A I	A			I D	I A	
4. Allow intensive use of wetlands and submerged lands only for major developments of state significance which, by their purpose, require location in these areas.	A R	A	A R		A	R	A			A									A			R	R	
5. Enable wetlands to be reasonably used by individuals for purposes which will not adversely affect the values and functions of these resources.	R		A	A		R	A			A								A	A			R	A I	
6. Discourage the discharge into wetlands and submerged lands of pollutants or materials in amounts which would destroy or significantly harm their values and functions.	R	A				R	A			A	A								A		R	R	R	
7. Discourage the drainage of wetlands and submerged lands.	R	A	R	R		R	A			A	A							A I	A			R	R	
8. On state-owned wetlands or submerged lands, prohibit commercial, industrial and residential development and other development which, by their general purpose, are not required to be located in these areas.	R	A	A		A	R	A			A		A								R		R	R	
9. Give maximum protection to wetlands and submerged lands that have been categorized as having special significance to the state.	R I D	A	A D R			R	A D			A								A	A D			R	R	

STATE LAND DEVELOPMENT PLAN
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POLICIES / IMPLEMENTING AGENCIES		LOCAL GOVERNMENT	SUB-STATE DISTRICTS			STATE AGENCIES												FEDERAL AGENCIES						RECOMMENDATIONS
			RPA	WMD	SWCD	DOA	DER	DNR	DOT	DACS	GFC	HRS	DCA	DOC	DOS	DGS	PSC	DBR	USDA	USDI	HUD	EPA	CORPS OF ENG.	USDOC	
10. Require development in adjacent upland areas to be located, designed and constructed so as to minimize the adverse impact on the values and functions of wetlands and submerged lands.		R	A	A	D	A	R	A	D		A								A I	 A			A R	A	
11. Encourage research aimed at assessing the relative values of various wetlands and submerged lands in the state.						I	I	I D			I D								D	D		I D		A I D	
WATER QUANTITY	1. Encourage the retention and storage of surface water in naturally occurring storage areas such as lakes, streams and wetlands, consistent with the maintenance of these areas' long-term productivity and stability.	R D		R D	D		A				A								A I D	A			A D		
	2. Discourage development practices which necessitate or contribute to excessive drainage of land and soils.	R	A	R	A R	A	A	A											A	A	R		A	A	
	3. Discourage attempts to modify weather patterns until adequate scientific investigation establishes the consequences of such actions.			A																A			A	D	
	4. Encourage the utilization of water from local hydrologic basins to accommodate new development rather than through transfer of surface water between hydrologic basins.	D	A	R			A	A											A	A			R		
	5. Allow the transport of groundwater from one area to another only after confirmation that ground and surface water and related resources will not be adversely affected and after acceptance of such by affected governments.	D	A	R	A		R	A			A									A			A		

STATE LAND DEVELOPMENT PLAN
IMPLEMENTATION MATRIX

IMPLEMENTING AGENCIES / POLICIES	LOCAL GOVERNMENT	SUB-STATE DISTRICTS			STATE AGENCIES												FEDERAL AGENCIES						RECOMMENDATIONS
		RPA	WMD	SWCD	DOA	DER	DNR	DOT	DACS	GFC	HRS	DCA	DOC	DOS	DGS	PSC	DBR	USDA	USDI	HUD	EPA	CORPS OF ENG.	USDOC	
6. Encourage agricultural users to minimize their demands on water supplies with water management and conservation practices.			R	A D			A		A									I A	A					
7. Encourage the use of water conservation practices through the state and require them in urban and industrial areas with water shortage problems.	R		R	A D		A	A											A I	A				A	
8. Encourage the provision of sufficient water to insure the long-term productivity and stability of self-maintaining natural ecosystems.			R D	R D		A	A			A									A			D	A	
9. Discourage alterations of normal groundwater movements within and between aquifers which may be harmful to the groundwater resource.			R			A	A												A				A	
10. Protect and maintain groundwater supplies and aquifer recharge areas through water and land management practices and, where necessary, regulation of development activities.	R	A	D R			A	A												A			D I	A	11
11. Discourage the alteration of groundwater discharges which would adversely affect surface water and related resources.	R	A	R	R	A		A											A	A			A	A	
12. Encourage coordinated state, federal, regional and local hydrological studies of freshwater resources.	A	A	I D	A		I A	A		A	A								A	I A			I A		14 15 16

STATE LAND DEVELOPMENT PLAN
IMPLEMENTATION MATRIX

POLICIES / IMPLEMENTING AGENCIES	LOCAL GOVERNMENT	SUB-STATE DISTRICTS			STATE AGENCIES												FEDERAL AGENCIES						RECOMMENDATIONS
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WATER QUALITY 1. Encourage land development and wastewater disposal techniques that result in minimal point discharges to surface water, where economically feasible.	D R	A	A			R A	A											I		I	A R I		A	
2. Encourage sound management practices which provide control or treatment of non-point discharges to surface waters.	R D	A	A	D		A	A											A I			I A		A	
3. Encourage that wastewater treatment strategies be kept flexible and recognize regional or local conditions and requirements.						D	A														D		A	
4. Encourage continued research into the use of non-structural alternatives for wastewater treatment and water quality enhancement as opposed to high cost structural facilities.						A I	A											I A	D		I A D		A	17
5. Encourage development design and location techniques which require a minimum of water treatment to meet mandatory water quality standards.	R D	A	A		A	A R														R	A I D R			
6. Encourage the beneficial use or reuse of resources and process by-products which now constitute pollutants when dispersed into the state's waters.						A	A											A I	A		A I		A	
7. Encourage on-land retention of runoff water as an alternative to construction of treatment facilities.	R D		A	D		R	A											A I	A		A I		A	

STATE LAND DEVELOPMENT PLAN
IMPLEMENTATION MATRIX

IMPLEMENTING AGENCIES / POLICIES	LOCAL GOVERNMENT	SUB-STATE DISTRICTS			STATE AGENCIES												FEDERAL AGENCIES						RECOMMENDATIONS
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8. Carefully regulate and monitor the site selection, operation, and density of sanitary landfills, land spreading operations, deep well injections and other similar waste disposal techniques.	R		A			R	A											A	A		R		A	
9. Protect groundwater supplies from saltwater intrusion by regulation of withdrawals, maintenance of adequate recharge of groundwater and prevention of saltwater movements inland through coastal canals.	D		R D			A	A												A			I D	A	
10. Closely regulate water-oriented development activities such as dredging and filling and spoil deposition to minimize water quality degradation.	R		A	R A		R	A			A									A		R	R	A	
11. Provide maximum protection of water bodies utilized for public supply, shellfish harvesting, and outdoor, water-dependent recreation.	R		A R	D		R	A			A	A								A		R	R	A D	12
12. Oppose the dumping of toxic wastes into offshore waters.	A	A				A	A				A								A		R		A	
13. Encourage increased monitoring and regulation to avoid indiscriminate waste discharges from commercial and pleasure vessels.	A					D A	A														R		A I	
14. Seek to increase the affectiveness of state and local governments in decision-making regarding offshore oil and deepwater port developments.	A	A			A	A	A												I A		I A		A I	

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15. Encourage increased monitoring and more stringent regulation of offshore mineral exploration, extraction, and transportation activities.						A	A												D		D R		A I	18
16. Support and encourage efforts to improve oil spill containment and clean-up capabilities.						A	D D												D A		D		A I	
SOILS	R			D																				
1. Base land use decisions, in part, on consideration of the limitations, capabilities and potentials of the soil.	D	A		A			A											A					A	
2. Guide new urban and residential development to areas with suitable soils.	R	A		A	A		A											A					A	
3. Encourage the use of detailed soil surveys and interpretations in land development planning to assess soil limitations and capabilities.	R A	A			A		A D											A I					A	
4. Encourage the planning of major urban and residential developments in accordance with natural topographic features to avoid extreme slope and site modification.	R	A			A		A	D										A I	A					
5. Plan the amounts of impervious surfaces in development of conformance with the permeability, compactibility, slope and water table depth of the soil.	R D	A	A	A	A		A	D										A I	A				A	

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6. Encourage the protection and agricultural use of soil types which are considered to be "prime" and "unique" for agricultural uses.	R I	A		A	A			A	A									A					A	
7. Require on-site erosion and sedimentation control practices on all land alteration projects.	R				A	D	A											A					A	24
8. Encourage "stage development," where feasible and replanting of disturbed areas during large-scale urban and residential type developments to expose as small an area of soil as possible.	R	A		A	A			D										A						24
9. Encourage the seasonal timing of land alteration for development to avoid erosion and run-off problems associated with heavy rains and high winds.	R	A		A	A	A		D										A						
10. Encourage sound landscape management practices in established residential, urban and other developments to protect ground cover and prevent erosion.	R D																	A						
11. Encourage conservation practices in agriculture to minimize erosion and sedimentation.	R			R A D					A									A I						
12. Regulate off-road vehicular traffic in areas sensitive to erosion.	R						A	A		A								A						20

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13. Maintain water levels as high as feasible on organic soils to reduce oxidation.			A D	A D					A									A						
14. Encourage acceleration and completion of the Soil Survey Program.	I D			D			A											I D					A	8
15. Encourage research of those soils and soil uses where additional information is needed.				A			A											I D					A	25
AGRICULTURAL LANDS 1. Encourage the retention of agricultural lands for agricultural uses, particularly those considered to be "prime" and "unique."	R I						A		A									A					A	
2. Coordinate land development in prime forest lands to retain as much forest land as possible.	R						A		A									D A					A	
3. Encourage the use of detailed soil surveys and consultation with appropriate government agencies to determine the agricultural productivity of a given tract of land.	D			A			A		A									A					A I	
4. Plan and coordinate development near agricultural areas to avoid adverse impact on resources essential to agricultural production.	R D	A		R A	A		A		A									A					A	

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5. Promote agricultural management practices which minimize reliance on fossil fuels.				A	A				A									A I						
6. Encourage the multiple use of agricultural and forest lands when such uses are compatible with production.	I						A		A D	A								A D	A				A I	
7. Encourage agricultural and silvicultural diversity and avoid monoculture to the extent feasible.							A		A D									A D					A	
8. Encourage forest management programs which promote mixed use and aesthetics and favor clear cutting on a small tract basis only.							A		A D	A								A D	A				A	
9. Encourage reuse of irrigation water, animal, and other agricultural wastes in agricultural management in order to decrease the reliance on chemical fertilizers and minimize adverse environmental effects.				A		A			A									A I			A I			
10. Minimize air and water pollution from current agricultural and forestry management practices by encouraging alternative management practices or by abatement measures.				A		A	A		A D	A								A I D			A I			
11. Encourage research in agricultural practices which are adapted to Florida's natural hydrologic cycle and minimize reliance on drainage and irrigation.			A	A			A		A									A I	A					

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MINERALS 1. Coordinate mining plans, operations and reclamation with land planning at all levels of government.	A	A	A		A	A	D A	A	A	A	A	A							A				A I	
2. Encourage the conservation and efficient use of non-renewable mineral resources.							A												A D				A I	
3. Encourage research and development in extraction technology.							A												D					
4. Encourage reprocessing or "scavenger" operations.	I						A												D					
5. Encourage the utilization of by-products generated during the mining and refining of the principle ore.							A												D					
6. Encourage research of the state's lesser-known minerals.							D												D					
7. Encourage geological exploration of the state and the compilation of all existing minerals data into a "minerals atlas."							D												D					10

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8. Encourage the protection of future mineral extraction sites through sequential land use and time phased land use regulation.	R	A					A	A											A				A I	
9. Require mandatory reclamation of mining sites.	R						R																	9
10. Encourage innovations in land reclamation technology.	R I						I A D											A	I D					
11. Identify and evaluate all hazards associated with reclaimed lands.	A	A				D	D				D								D		I D			
12. Carefully plan and coordinate mining and processing activities with available water supplies to insure protection and most beneficial uses of water resources.	R	A	R			A	A												A				A	
AMENITIES 1. Encourage the protection and maintenance of publicly and privately owned areas with rare and unique natural features.	I R	A				R	A D			A								D	A D				A D	31
2. Preserve in their natural state the most representative units of each type of ecological system in sufficient amounts and locations so as to be self-sustaining and available for public benefit.	D						A D			A								D	D				A I D	31

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3. Encourage the regulation of development on lands adjacent to publicly owned lands which have significant amenity values.	R	A			A		A							A					A				A	
4. Insure the long-term maintenance of habitat of rare and endangered species of plants and animals.	R D						D A			I A									A I D				A I D	19
5. Encourage land and water management practices which will protect and enhance fish and wildlife resources.	R D	A	R D	D	A	R	A	D		A								I	I A		R	R D	A	
6. Protect fish and wildlife habitat against the adverse effects of heavy motorized vehicle and boat traffic.	R						A D		D	A								D	A D					
7. Encourage the use of "green belts" and open space in planning for urban development and redevelopment.	I R D	A			A		A													I			A I	
8. Design and locate development to enhance and utilize natural scenic vistas.	I D	A			A		A	D							D								A	
9. Discourage land development activities and location of structures which unnecessarily detract from the scenic beauty of the state.	R	A			A		A	D							D								A I	

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	10.	Protect and restore the historic and archaeological resources of the state.	R D						A							D R A					D I A					A I	
BEACHES AND DUNES	1.	Encourage the use of beaches for recreation oriented activities which do not alter or disturb these resources.	I D	A					A I						I									R	A I	
	2.	Discourage urban, residential or other development along sandy beaches and dunes along the Atlantic Ocean and the Gulf of Mexico which would threaten the integrity of the primary dunes and beaches.	R D	A			A	R	A R															R	A I	
	3.	Protect non-sandy estuarine beaches against incompatible uses and closely regulate developments of state significance which, by its general purpose, require location on or near beaches and shores.	R D	A			A	R	A R															R	A I	
	4.	Encourage upland development along the beaches and dunes only for purposes which will not alter or disturb these resources.	I D						I A																A I	
	5.	Encourage the protection and maintenance of the natural functions and values of the barrier islands of the state.	R	A			A	R	D A	A		A													A I D	
	6.	Provide adequate access to public beaches and in a manner which will not alter or disturb the primary dunes or beaches.	R I D						A D													D		D	D	

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7. Support dune stabilization and restoration projects in areas where significant erosion and damage have occurred and control of development in and around such areas to protect the public investment.	D					I D	A I D															D	A I	
NATURAL HAZARD AREAS																								
1. Regulate the use of flood prone areas for purposes compatible with the hydrological characteristics of the areas.	R D		A				A					A							A	R		A	A I	
2. Require redevelopment and new residential development in the 100 year flood plain to be designed and constructed such that ground floor elevations are at or above the 100 year flood elevations.	R D						A					A								R		A	A I	
3. Require flood proofing for non-residential and public facility development in 100 year flood plain areas.	R D						A					A								R		A	A I	
4. Protect floodways in riverine flood plains from development which would impair their normal capability to discharge water from the 100 year flood.	R D		A			R	A					A								R		A R	A I	
5. Require that development below the level of the 100 year flood in coastal hazard areas be located above the mean high tideline and adequately elevated, anchored and designed.	R D						A					A								R		A	A I	
6. Insure the provision of adequate transportation facilities to enable prompt evacuation of people from hurricane prone and other natural hazard areas.	D	A					A	D				A								I		A	A I	

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7. Discourage large expenditures of public funds for flood control for the purpose of enabling increased urban and residential development in flood hazard areas.	D		D			D	A					A								I A		A I D	A I	
8. Encourage flood plain regulation and management, relocation of people, and other non-structural solutions as alternatives to structural flood control facilities.	R	A	A			R	A					A								A		A I R	A I	
9. Encourage the utilization of preservation and restoration of natural resources to provide protection from wind, wave and water damage.	R D I	A	A				A D					A							A	A		A D	A I	
10. Insure that land developers and prospective buyers in areas with significant geologic and soil hazards are made aware of potential dangers to life or property.	R	A		A R	A		A										R		A				A	
11. Require investigations in areas known or suspected to have soil or geologic hazards, prior to making decisions regarding construction of large scale developments and public facilities.	R	A			A		A	D							D				A				A I	
12. Encourage the establishment and maintenance of effective warning systems, evacuation routes and fire control capabilities in natural fire hazard areas.	D	A						D A	D A									D A						A	
TRANSPORTATION 1. Utilize transportation facilities to achieve orderly growth and development in the state.	D	A						D														D		

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2. Support and encourage efforts to develop effective mass transportation systems, non-motorized transportation and other alternatives to automobiles in order to conserve energy and other resources.	I D	A			A			I D											I					22
3. Encourage the regulation of land development in the vicinity of major thoroughfares to avoid safety hazards, insure the long-term adequacy of the transportation facility and achieve orderly growth and development.	R	A			A			A																
4. Strengthen the regulation of billboards and signs along major highway thoroughfares to insure the maintenance of an aesthetically pleasing countryside.	R							R																21
5. Locate and utilize transportation facilities to insulate areas of state, regional or local concern from incompatible land uses.	D	A			A			D																
6. Discourage the widening of neighborhood streets which would significantly damage the character of the neighborhood as a means of accommodating through traffic.	D							D																
7. Discourage residential and other incompatible land uses in noise and safety hazard areas surrounding airports.	R	A			A	A		A			A	A												
8. Encourage the development of long range comprehensive plans for all seaports in the state.						I A	 A	I D A														A I		7

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9. Encourage the utilization, development and expansion of existing seaports over the establishment of new ports.						D A	A	A														D	A I	
10. Coordinate railroad development and abandonment plans with all levels *of government*.	A	A			A			A								A								
11. Support the continued utilization and maintenance of the state's existing inland waterways and established seaports as a major transportation mode, consistent with resource conservation and protection.					A	D	A	A D		A			A						A		A	D	A I	
ELECTRICAL POWER PLANTS																								
1. Require the location of large electric power plants in areas where present and projected population densities are low.	A R	A			A	R	A				A					A							A I	
2. Discourage urban and residential development in the safety hazard zone surrounding electric power plants.	R	A			A	A	A				A												A I	
3. Require the location of power plants in areas with sufficient water resources for use by the plant as well as to satisfy human needs and sustain existing natural systems.	A R	A	A		A	R	A									A			A				A	
4. Encourage the location and design of power plants so as to avoid or minimize adverse effects on land resources of regional or state importance and restore depleted and degraded resources where feasible.	A R	A	A		A	R	A									A							A I	

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5. Encourage the use of natural systems, where feasible and consistent with the natural values of these systems, for power plant water cooling and purification as an alternative to high cost structural facilities.	A	A	A		A	R	A			A						A					I		A I	
6. Encourage early coordination of plans for new plants among utility companies in order to avoid the creation of unnecessary excess power capacity.	A	A			A	A	A									I D							A	

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